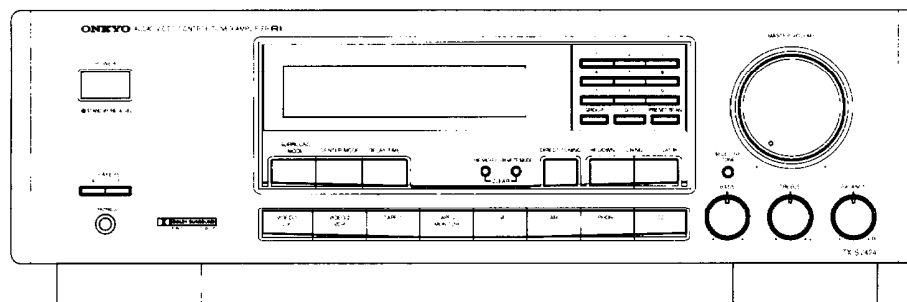


TX-SV424

Audio Video Control Tuner Amplifier

Instruction Manual



Thank you for your purchase of the Onkyo A/V Tuner Amplifier.

Please read this manual thoroughly before making connections and turning on the power.

Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new A/V Tuner Amplifier.

Please retain this manual for future reference.

Features

■ Your Power Needs Are Covered

A solid 60 watts per channel into 8 ohms gives you plenty of power to drive your stereo-channel music sources to perfection (CD, tape, phono, etc). In surround mode you get 50 watts to each of the front three speakers — for distinctly clear center-channel dialogue — plus 15 watts per channel to your surround speakers — for spine-tingling, realistic wrap-around movie excitement that's as good as it gets.

■ Dolby* Pro Logic and Hall Surround

No doubt you want the most accurate decoding for the most satisfying viewing and listening experience. Dolby Pro Logic and Hall Surround fill the bill. Dolby Pro Logic Surround locks the dialogue to the screen for heightened realism and natural, easy-to-understand dialogue — even during raucous action scenes. Onkyo's Hall Surround, with adjustable digital delay, enables you to recreate the acoustics of some of the best music halls in the world.

■ Discrete Output Stage Circuitry

Go ahead and hook up those big, imposing, low-impedance speakers. Then turn your system up. Loud. And enjoy the ease, grace and effortless dynamics that Onkyo's discrete output stage circuitry provides. Coupled with heavy-duty power supplies and properly designed heat sinks, the TX-SV424's discrete output circuitry helps it excel at accurately driving even the most demanding low-impedance loads.

■ Dedicated Line-Level Subwoofer Output

Big-bass impact is what separates a good home theater system from a killer home theater system. That's why there's a subwoofer output. It gives you quick, easy subwoofer connection. So you can have deep wall-shaking, bone-rattling bass that will rivet you and your audience to your seats.

■ RI Compatible Remote Control

As you might expect, the full-function **RI** (Remote Interactive) remote control gives you command of the major functions of virtually any Onkyo component that bears the **RI** symbol.

■ Useful Extras You'll Enjoy

- **2 Video and 6 audio inputs:** For all your present and future AV needs.
- **30 FM/AM random presets:** Especially convenient if there are a lot of radio stations in your area. You can assign a number, in any order, to each of your favorite FM and AM stations then access them simply at the touch of a button.
- **Auto tuning:** Scans your preset stations at the touch of a button.
- **3 Station-group presets:** Lets you put your favorite stations together into categories of your choice and scan them with one button push.
- **FM TUNED indicator:** For accurate, pinpoint FM tuning.
- **Direct access tuning:** Gives you instant access to your favorite FM and AM stations — without fiddling around with up/down tuning keys or dials.

*Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under Canadian patent number 1,037,877.

"Dolby", the double-D symbol , and "Pro Logic" are trademarks of Dolby Laboratories Licensing Corporation.

FOR U.S.A. MODEL

Note to CATV system installer:

- This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

FOR CANADIAN MODEL POUR LE MODELE CANADIEN

- For models having a power cord with a polarized plug.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

- Sur les modèles dont la fiche est polarisée.

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

FOR EUROPEAN MODEL

- This apparatus complies with requirements of EC directive 87/308/EEC.

ATTENTION FOR BRITISH MODEL

- Replacement and mounting of an AC plug on the power supply cord of this unit should be performed only by qualified service personnel.
- **IMPORTANT:** The wires in the mains lead are coloured in accordance with the following code:
Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system.

The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.

Important Safeguards

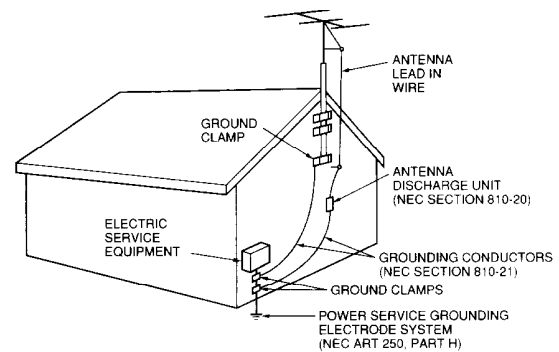
PLEASE READ CAREFULLY ALL THE FOLLOWING IMPORTANT SAFEGUARDS THAT ARE APPLICABLE TO YOUR EQUIPMENT.

1. **Read Instructions** – All the safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** – All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** – All operating and use instructions should be followed.
5. **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** – Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **Water and Moisture** – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. **Accessories** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child of adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. **Power Sources** – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12. **Grounding or Polarization** – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
13. **Power-Cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
14. **Outdoor Antenna Grounding** – If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.



15. **Lightning** – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
16. **Power Lines** – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. **Overloading** – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. **Object and Liquid Entry** – Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19. **Servicing** – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20. **Damage Requiring Service** – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a) When the power-supply cord or plug is damaged.
 - b) If liquid has been spilled, or objects have fallen into the product.
 - c) If the product has been exposed to rain or water.
 - d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - e) If the product has been dropped or damaged in any way.
 - f) When the product exhibits a distinct change in performance – this indicates a need for service.
21. **Replacement Parts** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
22. **Safety Check** – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
23. **Wall or Ceiling Mounting** – The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
24. **Heat** – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

**FIGURE 1:
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL
ELECTRICAL CODE, ANSI/NFPA 70**



WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precautions

1. Warranty Card

The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.

2. Recording Copyright

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

3. AC Fuse

The fuse is located inside the chassis and is not user-serviceable. If power does not come on, contact your Onkyo authorized service station.

4. Care

From time to time you should wipe the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

5. Power

WARNING

BEFORE PLUGGING IN THE UNIT FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

- Some models are designed for use only with the power supply voltage of the region where they are sold.

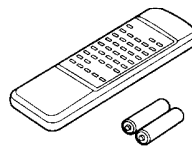
European and Australian models: AC 230V, 50Hz
U.S.A. and Canadian models: AC 120V, 60Hz
Worldwide model: AC 220V/120V switchable, 50/60Hz

● Voltage Selector (Rear Panel)

Worldwide models are equipped with a voltage selector to conform to local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

The power does not shut off completely by just turning the power off. So power cord should be removed from AC outlet when not in use for a prolonged time.

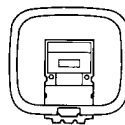
Supplied accessories



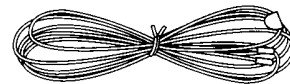
1 Remote control (RC-295S)
2 Batteries (size AA, R6, or UM-3)



1 Remote control cable

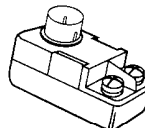


1 AM loop antenna

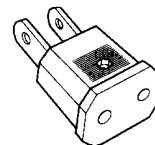


1 T-shaped FM antenna

The following accessories are only available for worldwide models.

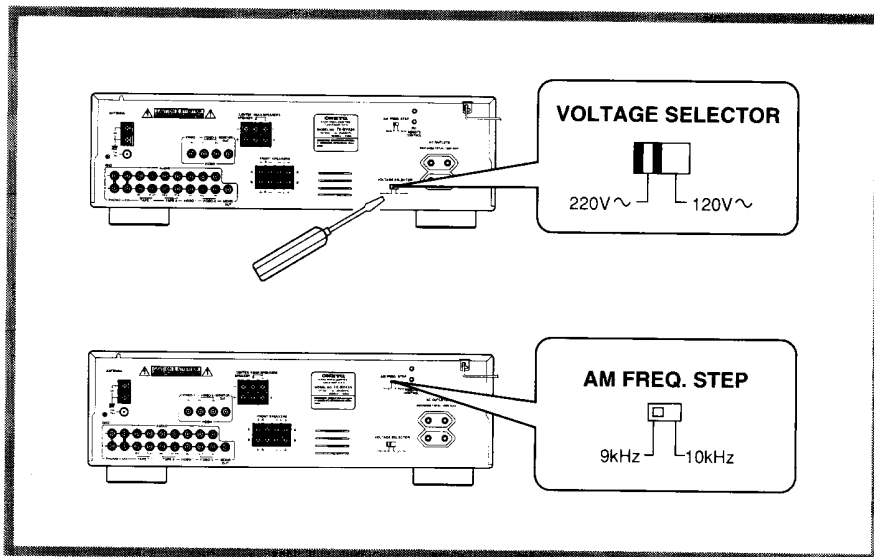


1 75/300 ohm antenna adaptor



1 CV plug (Shape may vary according to the area where purchased.)

Setting the voltage selector and tuning step frequency (Worldwide models only)



Voltage selector

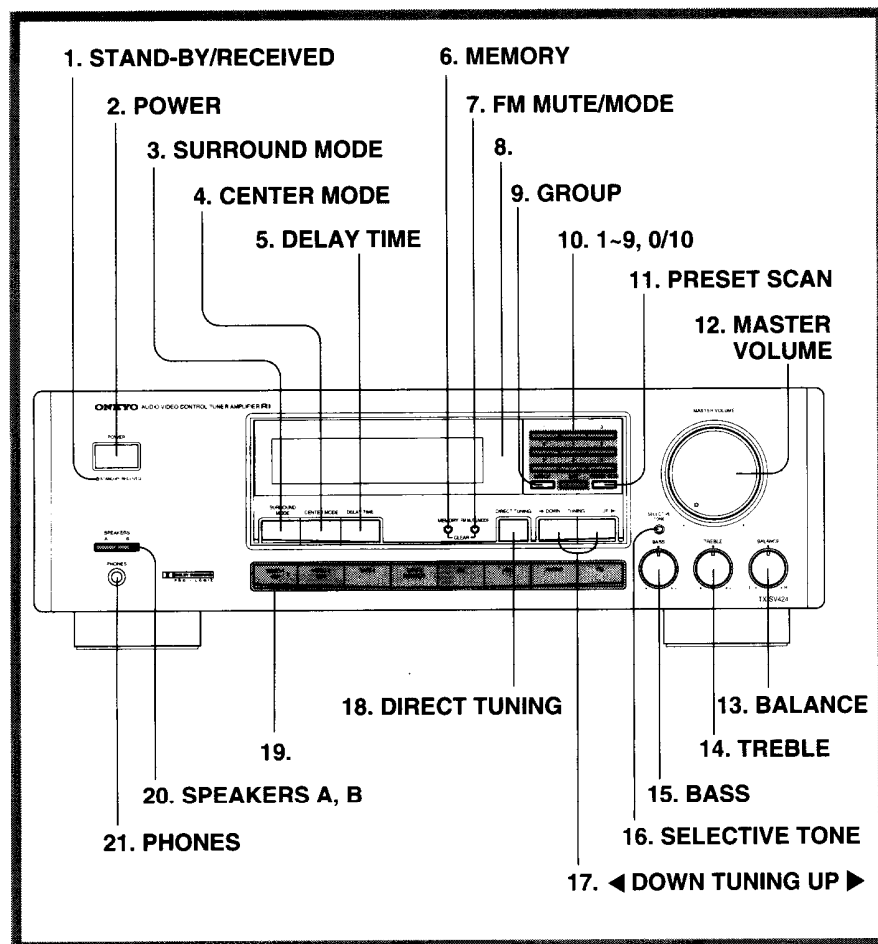
- Determine the proper voltage for your area: 220V or 120V.
- If the preset voltage is not correct for your area, insert a screwdriver into the groove in the switch. Slide the switch all the way to the right (120V) or to the left (220V), whichever is appropriate.

AM tuning step frequency

Worldwide models are equipped with a switch that controls the AM band tuning steps. Please set this switch to match the AM band tuning step frequency in your area.

U.S.A. and Canada : 10kHz
Other areas : 9kHz

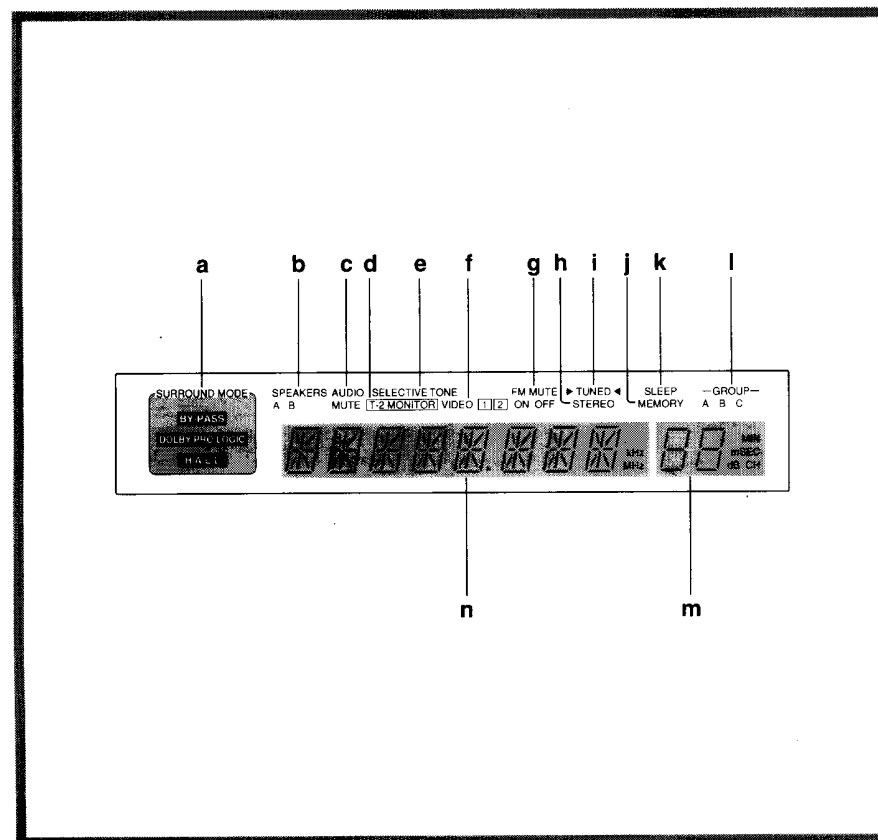
Control positions and names



For more information about buttons or knobs, turn to page number listed in the [].

Front panel

1. Stand-by/Received indicator [14]
2. Power button [14]
3. Surround Mode button [19, 20]
4. Center Mode button [19, 20]
5. Delay Time button [19, 20]
6. Memory button [17]
7. FM Mute/Mode button [16, 17]
8. Remote control sensor [6, 11]
9. Group button [17]
10. Number buttons [16, 17]
11. Preset Scan button [17]
12. Master Volume control knob and indicator [14, 20]
13. Balance control knob [14]
14. Treble control knob [14]
15. Bass control knob [14]
16. Selective Tone control button [14]
17. Tuning Up/Down buttons [16]
18. Direct Tuning button [16]
19. Input selector buttons [14, 16, 21, 22]
20. Speaker selector buttons [14]
21. Headphone jack [15]

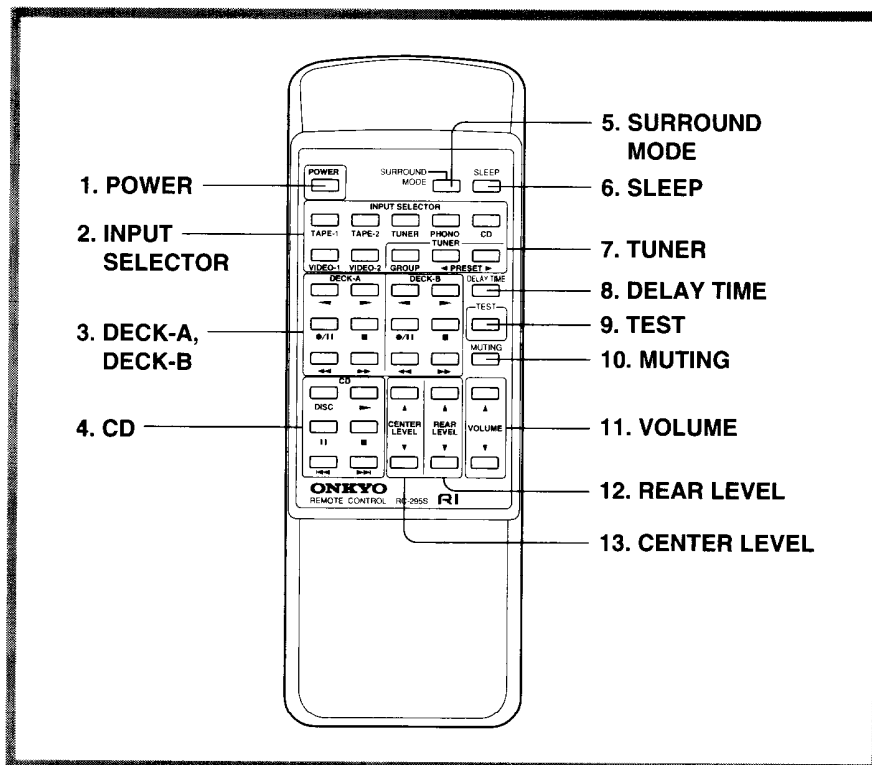


Display

If there is a protective film on the surface of the display, which is making it difficult to read the display, remove it.

- a. Surround Mode indicators
- b. Speaker selector indicators
- c. Audio Mute indicator
- d. Tape-2 Monitor indicator
- e. Selective Tone indicator
- f. Video input selector indicators
- g. FM Mute On/Off indicator
- h. FM Stereo indicator
- i. Tuned indicators
- j. Memory indicator
- k. Sleep indicator
- l. Group indicators
- m. Multi function display (Preset station/Sleep time/Center & rear volume level/Delay time)
- n. Multi function display (Frequency/Input selector)

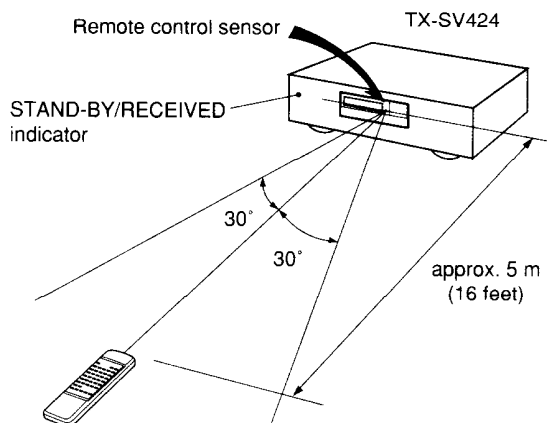
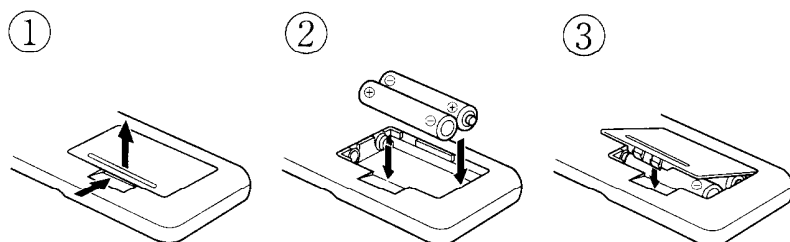
Remote control



Remote control

1. Power button [14]
2. Input Selector buttons [14, 21, 22]
3. Tape deck operation buttons [11]
4. CD player operation buttons [11]
5. Surround Mode button [19, 20]
6. Sleep button [15]
7. Tuner operation buttons [17]
8. Delay Time button [19, 20]
9. Test tone button [19, 20]
10. Muting button [15]
11. Volume up/down buttons [14, 20]
12. Rear Level up/down buttons [20]
13. Center Level up/down buttons [20]

Insert the batteries into the remote control according to the illustration.



Regarding the batteries

Average battery life is about one year, depending upon the frequency of use and the environment (temperature and humidity) in which the remote control is used. Only use batteries of the kind specified in the table below.

Type	Voltage	Size
Manganese	1.5V	AA, R6 or UM-3

Warning

- Do not leave an expired battery in the case – it may leak or damage the remote control.
- Do not use nickel cadmium (rechargeable) batteries.
- Replace both batteries at once; do not use one old battery and one new battery.

Using the remote control

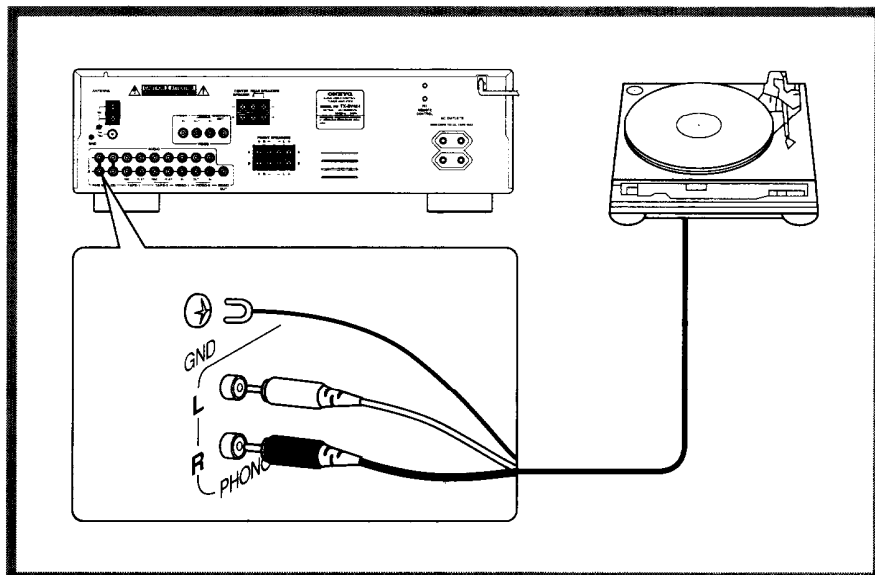
The STAND-BY/RECEIVED indicator lights when a signal is received from the remote control.

The following information will help you get optimal use from the remote control.

- Place this unit away from direct bright light, which can prevent proper operation of the remote control.
- Make sure audio rack doors do not have tinted glass. If this unit is placed behind such a door, this may prevent proper remote control operation.
- Using other remote controls in the same room as this unit's remote control may cause interference.

Making system connections

- Do not plug in the power cord until all connections have been made.
- On each pair of input jacks, the lower jack (marked R) corresponds to the right channel, and the upper jack (marked L) to the left channel.
- Please refer to the instruction manual of each component when making any connections.



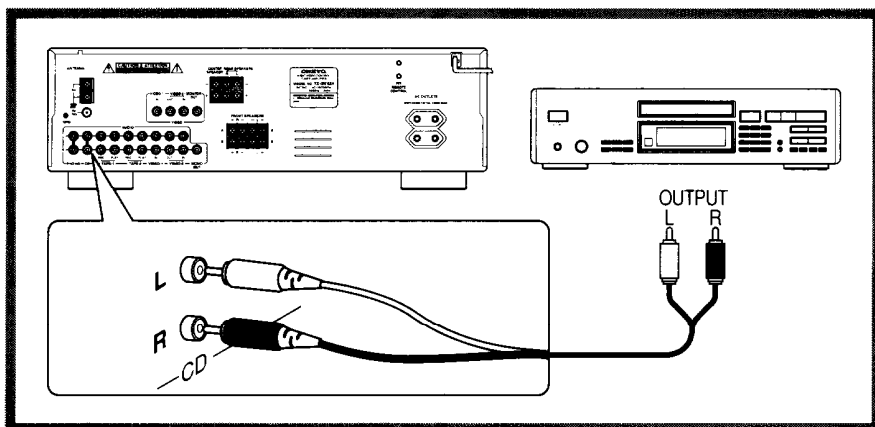
Connecting a turntable (PHONO)

Connect the output leads of the turntable to the PHONO input jacks.

Be sure to connect the ground (earth) lead wire from the turntable to the ground terminal (GND). Turntables not provided with ground wires do not need to be connected in this way.

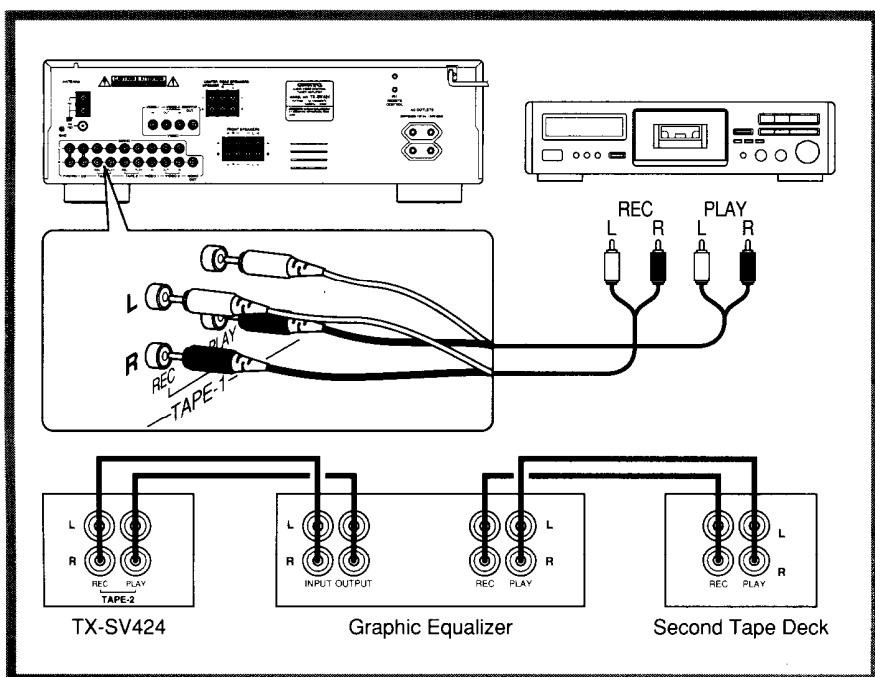
Place the turntable on a firm shelf or deck free from vibrations (especially those generated by the speaker system). If the turntable can pick up such unwanted vibrations, not only will the performance of the unit drop, but distortion in the bass frequencies and howling in the speakers may also occur.

- This unit is designed for use with turntables using moving magnet cartridges.



Connecting a CD player (CD)

Connect a compact disc player to the CD input jacks.



Connecting a tape deck (TAPE-1, TAPE-2)

This unit has facilities for two tape decks.

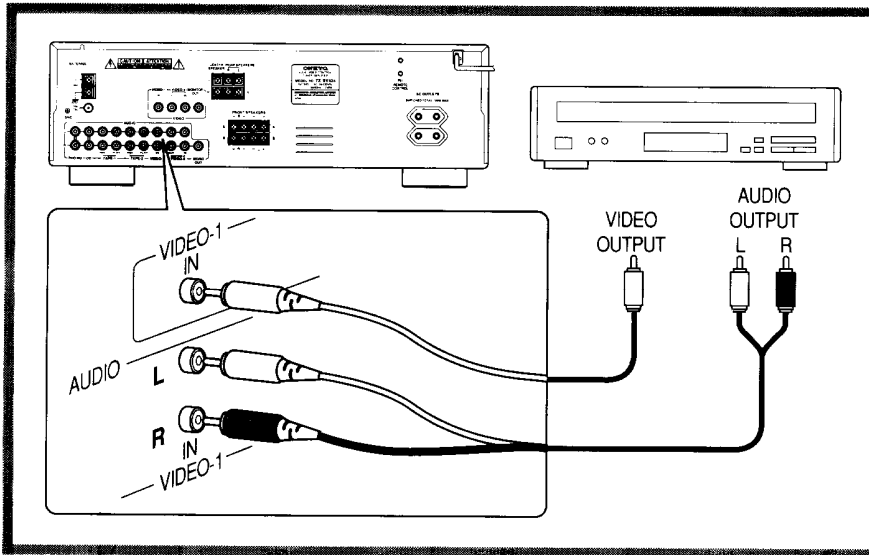
If you are using only one tape deck, connect it to the TAPE-1 jacks. If you have two tape decks, connect one to the TAPE-1 jacks and the other to the TAPE-2 jacks.

If you wish to use a graphic equalizer as well as two tape decks, connect the graphic equalizer to the TAPE-2 jacks, and connect the second tape deck to the tape jacks on the graphic equalizer. (See the diagram.)

Connect the OUTPUT jacks on the graphic equalizer to the TAPE-2 PLAY jacks on the TX-SV424, and the INPUT jacks to the TAPE-2 REC jacks as shown.

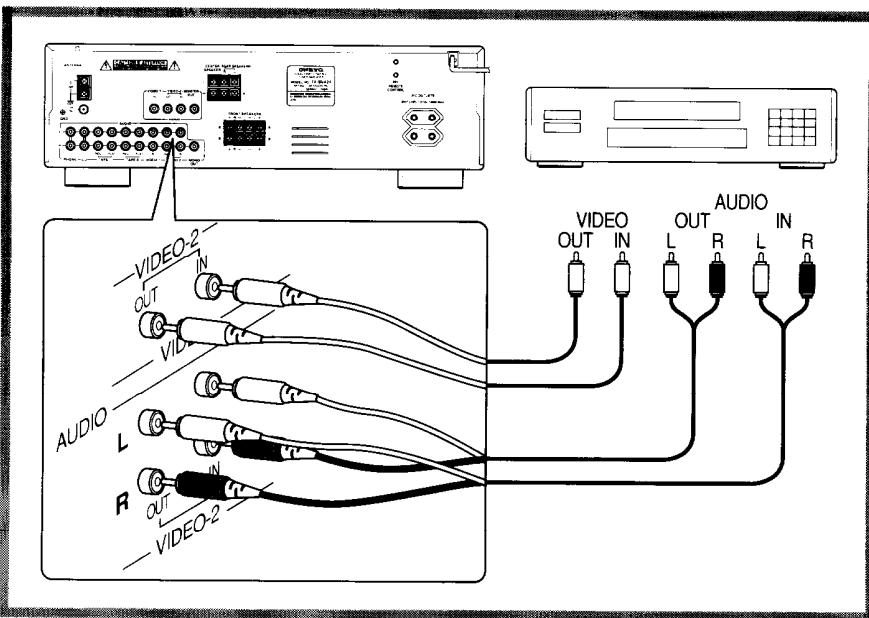
See page 22 on how to use a graphic equalizer.

Making system connections



Connecting a video disc player or video cassette player (VIDEO-1)

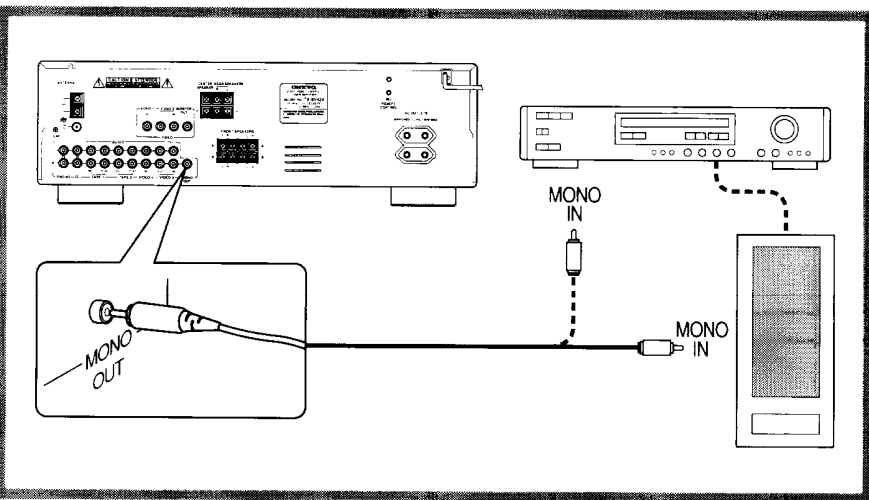
Connect the video output of the video disc player to this unit VIDEO-1 "IN" jack of VIDEO terminals and the audio output to the VIDEO-1 L and R "IN" jacks of AUDIO terminals. The VIDEO-1 jack is only for playback, there is no OUT jack. For more details, refer to the video player instruction manual.



Connecting a video cassette recorder (VIDEO-2)

Connect the video output of the VCR to this unit VIDEO-2 "IN" jack of VIDEO terminals and the video input of the VCR to the VIDEO-2 "OUT" jack of VIDEO terminals. Then connect the audio output of the VCR to the VIDEO-2 L and R "IN" jacks of AUDIO terminals. Finally, connect the audio input of the VCR to the VIDEO-2 L and R "OUT" jacks of AUDIO terminals. For more details, refer to the VCR instruction manual.

- When using a playback-only VCR, you only need to make the output connections.

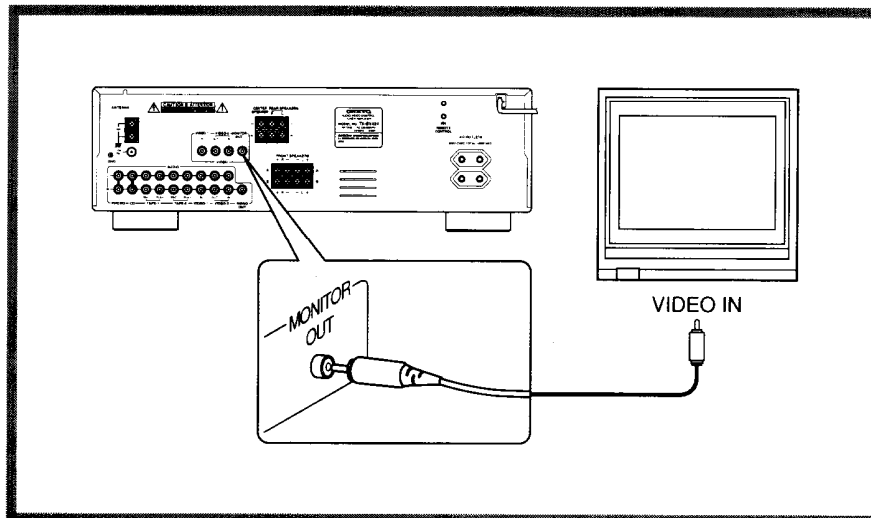


Using the MONO OUT Jack

The MONO OUT jack can be connected to a subwoofer amplifier, or to a subwoofer with a built-in amplifier.

- When using any unit connected to the MONO OUT jack, set the SPEAKERS A button on the front panel to ON.

Making system connections

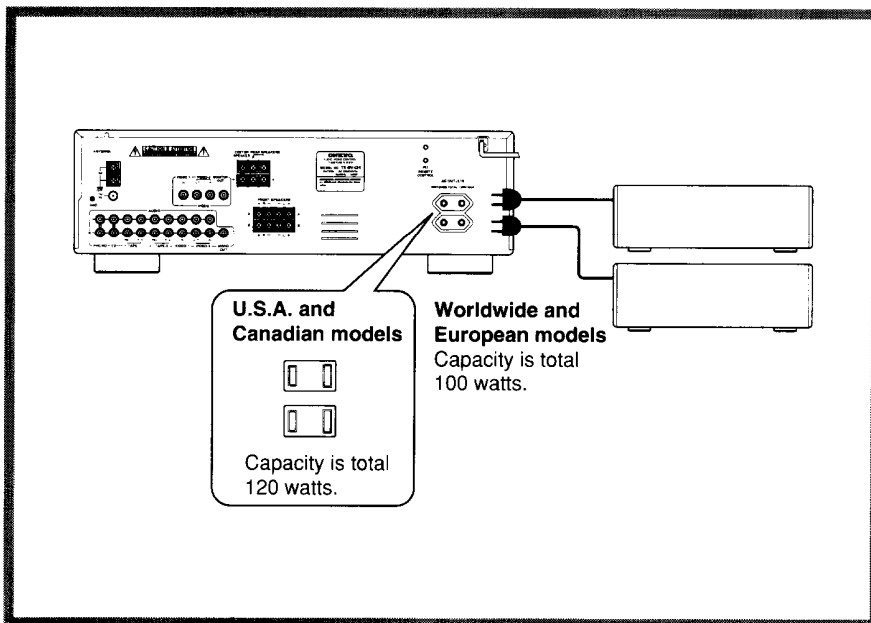


Connecting a monitor (MONITOR OUT)

Connect the TV video input to this unit MONITOR OUT jack. There is no need to perform an audio connection since sound will be sent directly from this unit to the speaker systems.

- This unit can be used with only a monitor TV equipped with a video input jack.
- Interference may be caused between the TV and this unit. If this interference occurs place this unit and the TV as far apart as possible.

We do not recommend the use of a common TV/FM antenna (see antenna section).



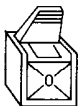
AC outlets

The SWITCHED outlets are switched on and off by the POWER button on the front panel or remote control.

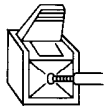
The shape, number and total capacity of the AC outlets may differ according to the area where the unit is purchased. Be careful that other components connected to this unit do not exceed the capacity that is printed on the rear panel above the AC outlets.

Making speakers connections

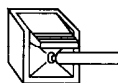
1



2



3



Connecting the speaker cable

1. Open the lever.
2. Insert the wire.
3. Close the lever.

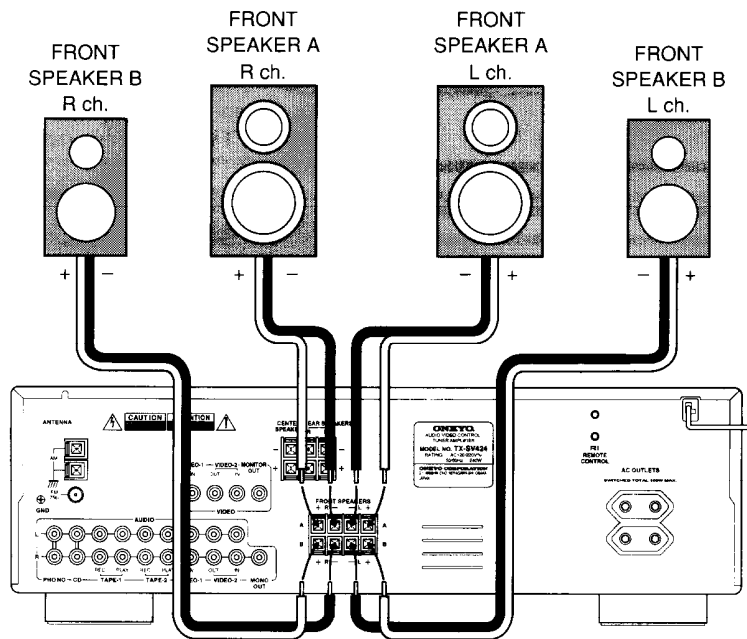
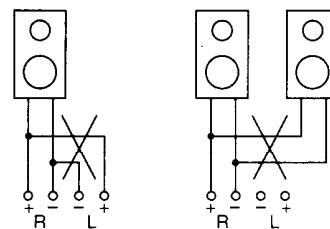
Before making any connections, please refer to the explanation of "Speaker impedance".

Connecting the front speakers

You can connect two separate pairs of speaker systems.

Please connect each speaker according to the illustration, observing the correct connections for R, L, + and -.

- Do not use unnecessarily long or extremely thin speaker leads. If the DC resistance of the speaker leads is too high, the damping factor will decrease, adversely affecting the sound quality.
- When using only one speaker or when you wish to listen to monaural (mono), the single speaker should never be connected in parallel to both the right and left channel terminals at once.



Connecting the center and rear speakers

Connect the center speaker and rear speakers (right and left) to the TX-SV424.

Speaker Impedance

This unit is designed to produce optimum sound quality when speakers with impedances within the set ranges are connected. Please check the following information and choose speakers with the necessary impedances for the connections.

FRONT SPEAKERS

A or B : 6 ohms min./speaker

A + B : Can not be used at the same time.

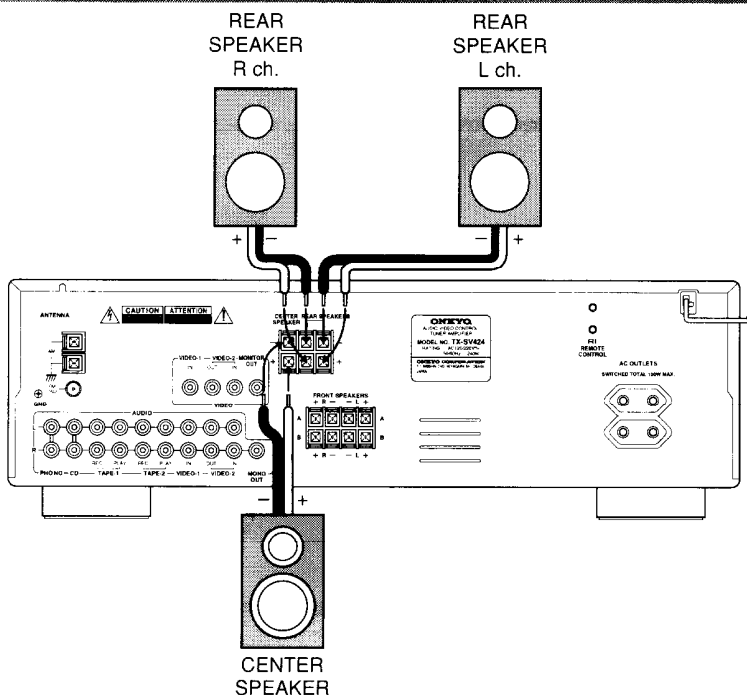
U.S.A. models:

A or B : 6 ohms min./speaker

A + B : 12 ohms min./speaker

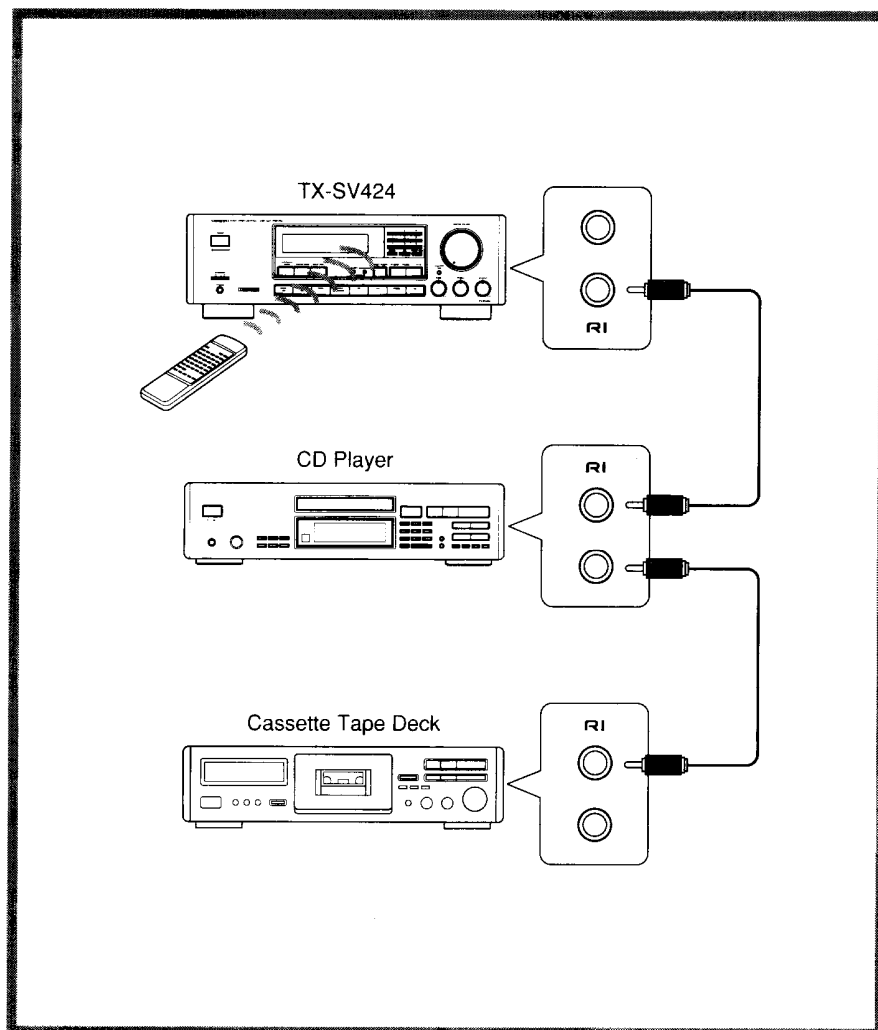
CENTER SPEAKER: 8 ohms min.

REAR SPEAKERS: 8 ohms min./speaker



Connecting Onkyo components for **RI** operation

When Onkyo products with the **RI** (Remote Interactive) mark are connected to the TX-SV424, you are able to operate each component with the remote control of the TX-SV424. This means you can control your whole system with just one remote control. (The **RI** mark is an Onkyo mark.)



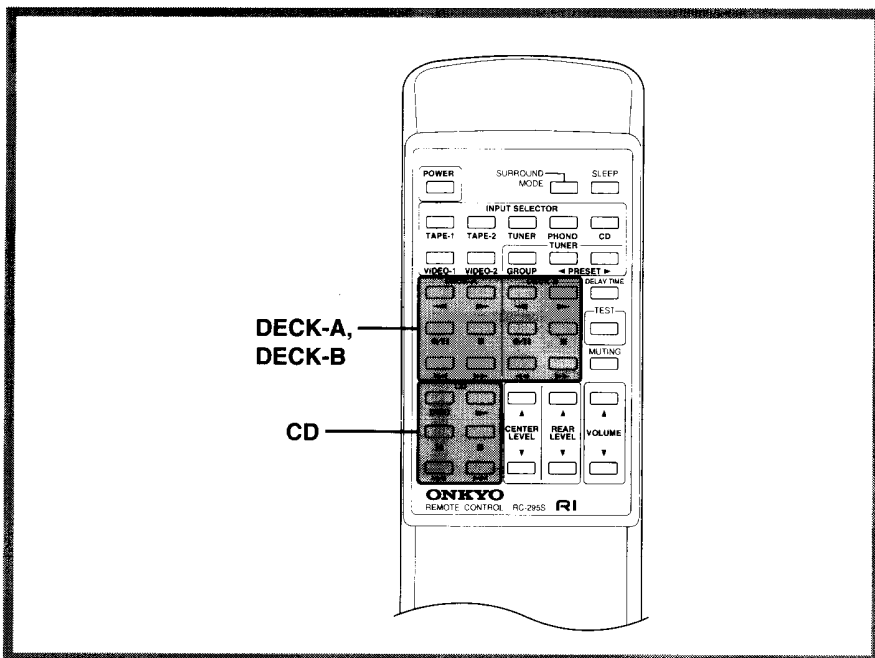
Connections for remote control (**RI**)

When connecting Onkyo products, it is necessary to attach the **RI** cable to be able to use the remote control of the TX-SV424 to control the entire system.

1. To use the TX-SV424 with an Onkyo compact disc player and cassette tape deck bearing the **RI** mark, connect the components together using **RI** remote control cable, plugged into the REMOTE CONTROL jacks.
2. As the exact connection sequence of the **RI** cable is unimportant, you can connect from this unit to either the compact disc player or the cassette tape deck.
3. To operate correctly, the remote control must face towards the remote control sensor of this unit.

NOTES:

- The upper and lower **RI** remote control jacks have the same function.
- A cassette tape deck and compact disc player that have the Onkyo **RI** mark can be operated, using the accessory remote control.
- Remote control operation is not possible when only the remote control cable is connected – the audio connection cables must also be connected.
- An **RI** remote control cable equipped with a 1/8" (3.5mm) diameter miniature two-conductor phone plug is included with every compact disc player or cassette tape deck with the **RI** mark.



When you have made the connections mentioned above, you will be able to use the following buttons.

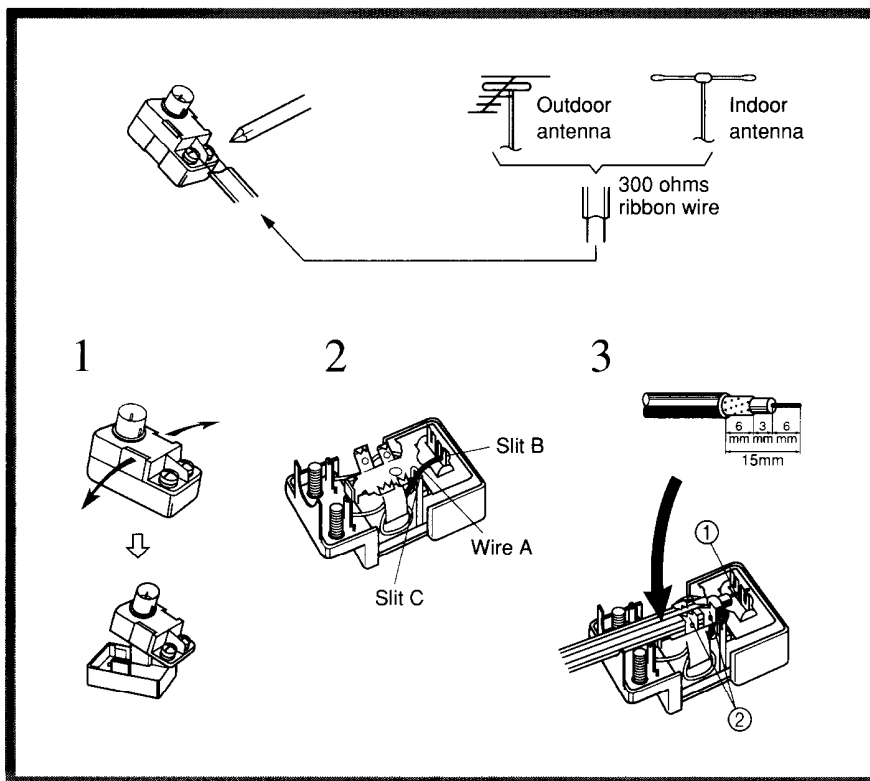
Tape deck operation buttons (DECK-A, DECK-B)

- ◀ : Reverse play button
- ▶ : Forward play button
- /|| : Rec/pause button
- : Stop button
- ◀◀ : Fast rewind button
- ▶▶ : Fast forward button
- When only a single deck is used, operate DECK-B.

CD player operation buttons (CD)

- DISC : Disc button for CD changer
- ▶ : Play button
- || : Pause button
- : Stop button
- ◀◀ : Down button
- ▶▶ : Up button

Making antenna connections



Connecting the antenna cable to the 75/300 ohm antenna adaptor (Worldwide models)

Connecting the 300 ohm ribbon wire:

Loosen the screws and wrap the wire around these screws. Then tighten the screws with a screwdriver.

Connecting the coaxial cable:

1. With your fingernail or a small screwdriver, press the stoppers outwards and remove the cover.

2. Remove the transformer wire A from slit B and insert it into slit C.

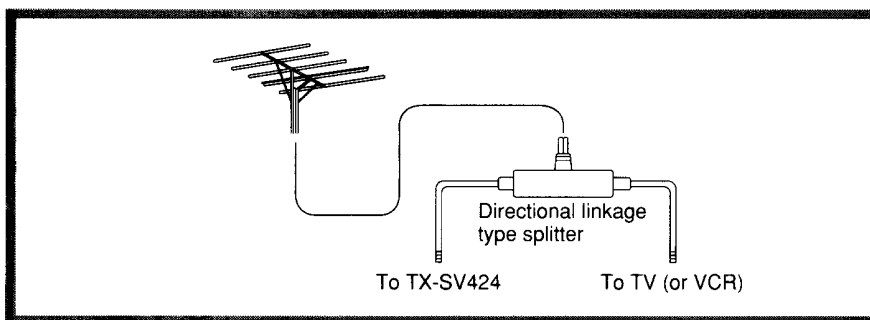
3. Prepare the coaxial cable as shown in the diagram.

Connect the 75/300 ohm antenna adaptor to the coaxial cable.

① Insert the end of the cable.

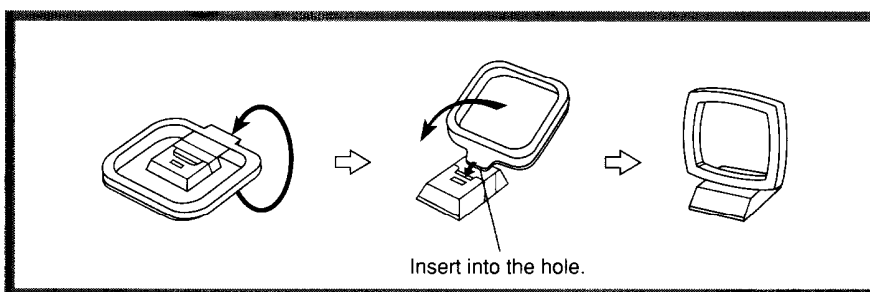
② Clamp it in place with pliers.

- This adapter is included if your TX-SV424 is a worldwide model.



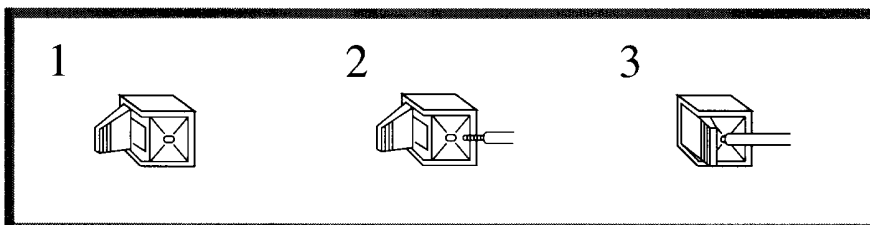
Directional linkage type splitter

Do not use the same antenna for both FM and TV (or VCR) reception since the FM and TV (or VCR) signals can interfere with each other. If you must use a common FM/TV (or VCR) antenna, use a directional linkage type splitter.



Assembling the AM loop antenna

Assemble the loop antenna as shown in the illustration.



Connecting the antenna cable

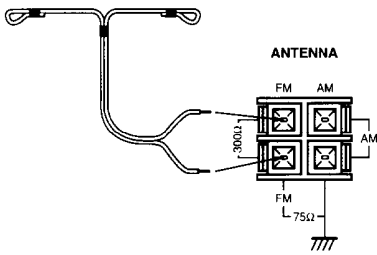
1. Open the lever.

2. Insert the wire.

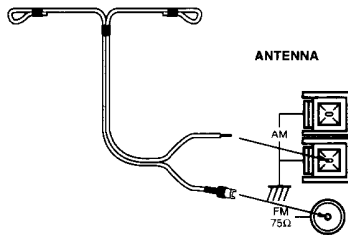
3. Close the lever.

Making antenna connections

U.S.A. and Canadian models



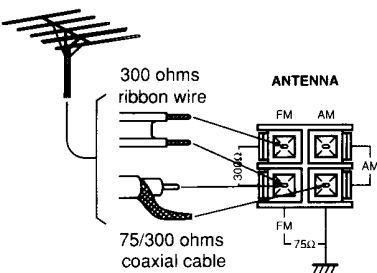
European and Worldwide models



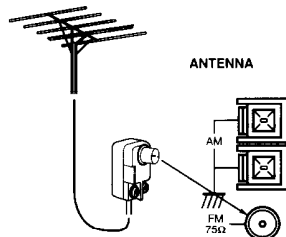
Connecting the T-shaped FM antenna

The T-shaped FM antenna is for indoor use only. Extend the antenna and move it in various directions until the clearest signal is received. Fix it with push pins or similar in the position giving the least amount of distortion.

U.S.A. and Canadian models



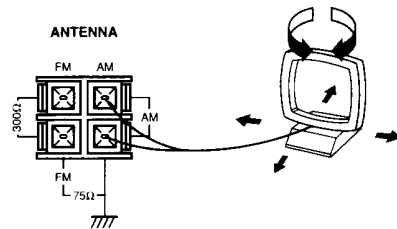
European and Worldwide models



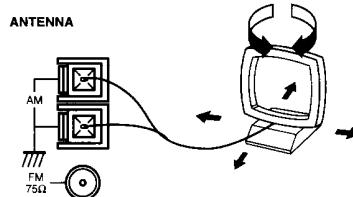
Connecting an FM outdoor antenna

If the reception is not very clear with the attached T-shaped FM antenna, the use of an external antenna is recommended. Please make sure that you comply with the following considerations regarding the location. Keep the antenna away from noise sources (neon signs, busy roads etc.). It is dangerous to put it close to power lines, so keep it well away from power lines, etc.

U.S.A. and Canadian models



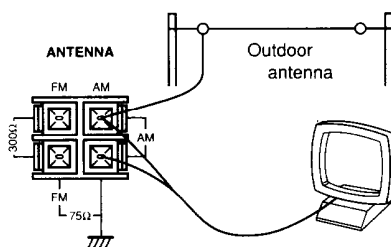
European and Worldwide models



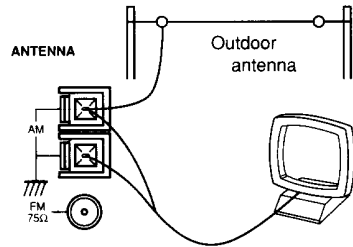
Connecting the AM loop antenna

The AM loop antenna is for indoor use only. Set it in the direction and position where you receive the clearest sound. Put it as far as possible away from the main unit, TV set, speaker cords and power cord.

U.S.A. and Canadian models



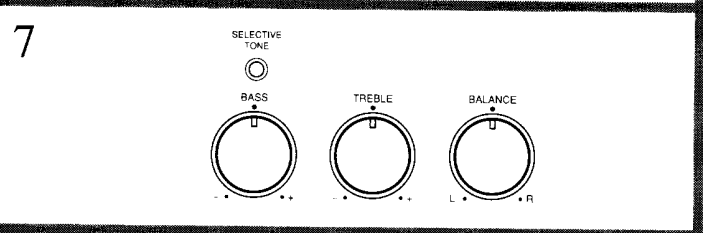
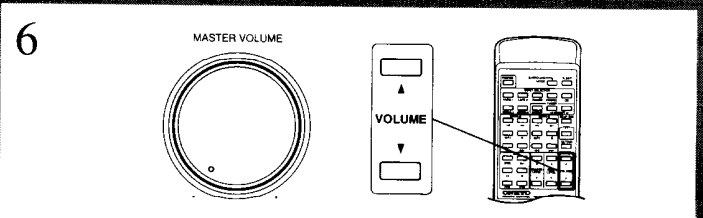
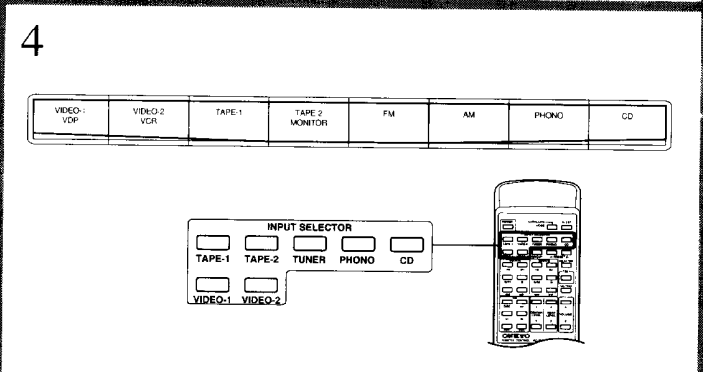
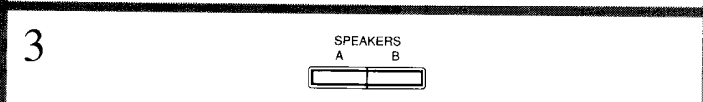
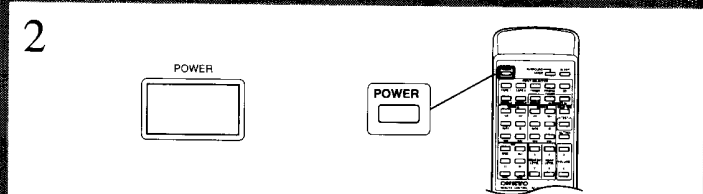
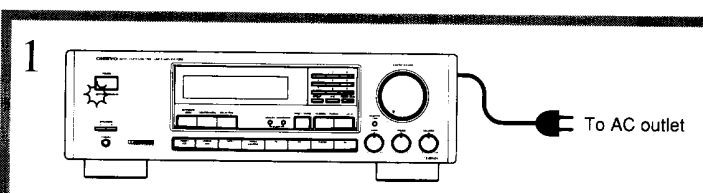
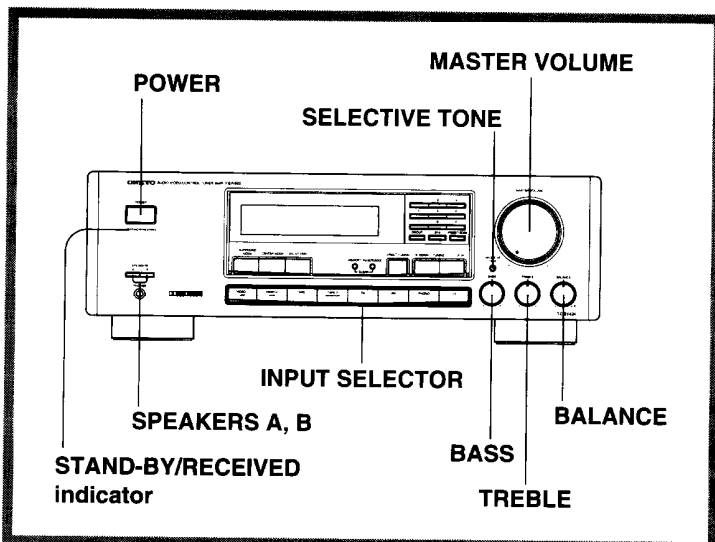
European and Worldwide models



Connecting an AM outdoor antenna

When reception is not satisfactory using the attached AM loop antenna alone, connection of an external antenna is recommended. (Do not remove the AM loop antenna.) The external antenna will be more effective if you stretch it horizontally in a high place above a window or outside.

Basic operations



Controls and functions

STAND-BY/RECEIVED INDICATOR

The STAND-BY/RECEIVED indicator comes on when the AC power cord for this unit has been inserted in an outlet. This indicates that this unit is standing by for operation. Press the POWER button will turn the main unit on, then this indicator goes off.

The indicator also lights when a signal is received from the remote control.

SPEAKERS SELECTOR

SPEAKERS A: This button turns on or off the speakers connected to the FRONT A, CENTER and REAR SPEAKERS terminals. When the speakers are turned on, the SPEAKERS A indicator lights up.

SPEAKERS B: This button turns on or off the speakers connected to the FRONT B SPEAKERS terminals. When the speakers are turned on, the SPEAKERS B indicator lights up.

- With U.S.A. model, Speaker A and B can be used at the same time.

- Other models, cannot be used at the same time. When one button is pressed, the other button is automatically turned off.

MASTER VOLUME CONTROL

Use this knob to adjust the volume of the Front, Center, Rear (Surround) speakers.

TONE AND BALANCE CONTROLS

Treble, Bass and Selective Tone are effectively only for the Front left and right speakers.

The best results are obtained from DOLBY PRO LOGIC Surround when the Center and Front left and right speakers contain the same amounts of mid and high frequencies. As the Treble and Bass control do not affect the Center speaker, adjust the tone controls for the Front left and right speakers to match the sound given by the Center speaker. Because of this, we recommend the use of a good quality Center speaker.

BASS: Adjust to strengthen or weaken bass response.

TREBLE: Adjust to strengthen or weaken treble response.

SELECTIVE TONE: This control is used to clearly reproduce ultra low and high frequencies, and only affects the Front speakers. When this control button is pressed, the SELECTIVE TONE indicator lights up.

BALANCE: Use to adjust the relative volume levels of the right and left Front speaker systems. This adjusts the relative volume level of the Front speakers only.

Selecting and listening to source

Before plugging in the unit, confirm that all connections have been made properly.

1. **Insert the AC power supply cord into the wall outlet.**

The STAND-BY/RECEIVED indicator comes on.

2. **Press the POWER button to turn on the power.**

The display lights up and the STAND-BY/RECEIVED indicator goes off.

3. **Press the SPEAKERS A button.**

SPEAKERS A indicator lights up.

4. **Press the desired input selector button (e.g. PHONO).**

The appropriate letters (e.g. PHONO) appear on the display. Confirm that the T-2 MONITOR indicator is off when a source other than the TAPE-2 MONITOR has been selected. Also check the audio muting is off.

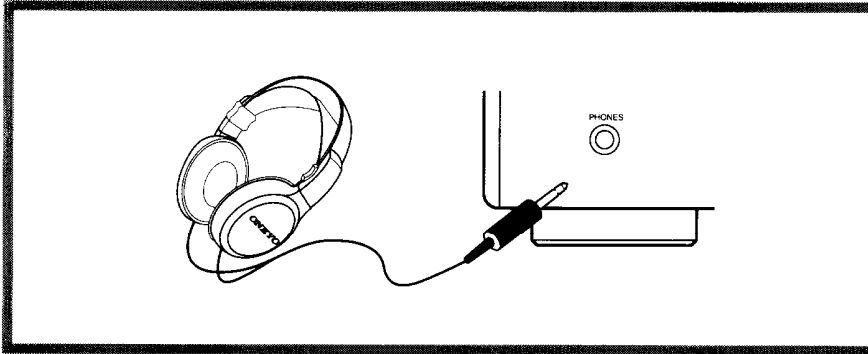
5. **Start the selected input source playing.**

Follow the operating instructions of that unit.

6. **Adjust the volume to appropriate level using the MASTER VOLUME control knob or VOLUME ▲ (up)/▼ (down) buttons on the remote control.**

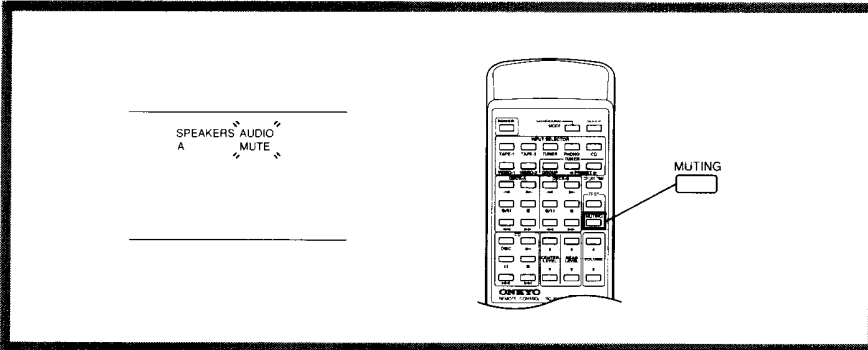
7. **Adjust the tone controls for your desired tone.**

Basic operations



Listening using the headphones

Stereo headphones with a standard stereo jack plug can be connected to the PHONES jack. The sound heard through the headphones is the same sound that can be heard from the Front speakers, although it may be slightly different from what is heard from the speakers when the Surround mode is used. (The sound from the headphones may sound a little distant.)



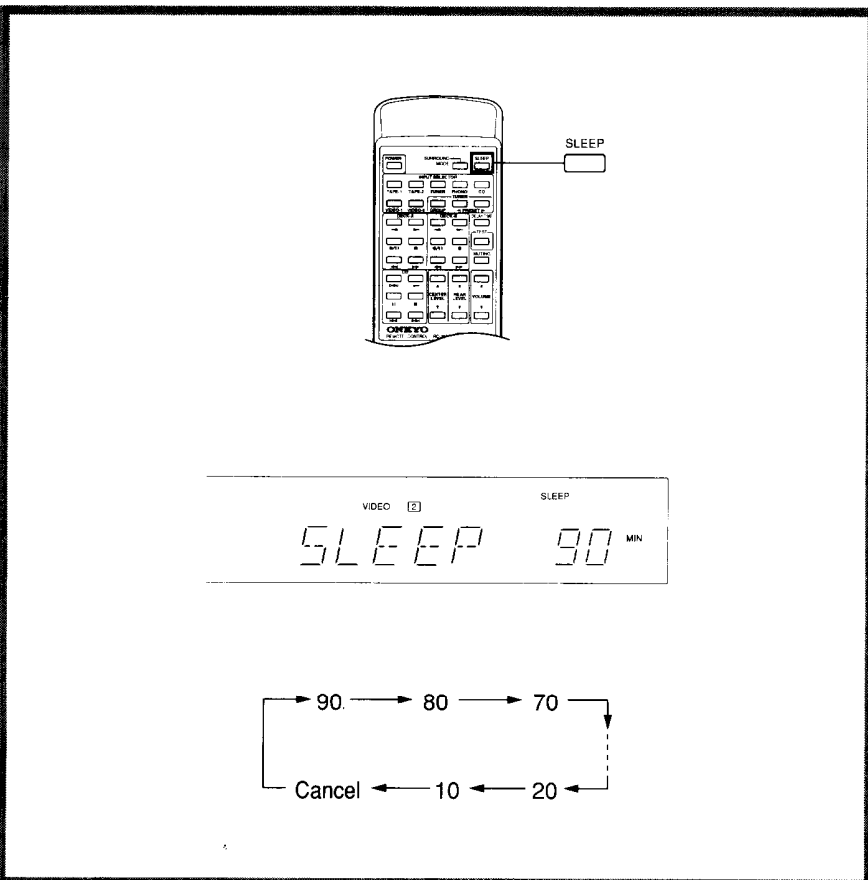
Temporary muting

Press the MUTE button on the remote control.

This button temporarily switches off the sound from the speakers or headphones. The AUDIO MUTE indicator will flash.

To cancel,

- press the MUTE button again, *or*
- turn the power off, then on.



Sleep facility

The sleep timer can power off the system after a specified time period.

To operate this function, use the remote control supplied with your TX-SV424.

1. **Start the source playing that you would like to listen to. (CD, tape or radio broadcast)**
2. **Set the amount of time after which you want the system to turn off.**

The sleep timer works for up to 90 minutes. You can shorten the timer by 10 minutes increments by pressing the SLEEP button until the desired time has been reached.

When the set time comes, the power will be switched off automatically.

Cancelling the sleep setting

Press the SLEEP button until it changes to the source display you are listening to.

or

The timer can also be cancelled while it is in operation, by turning off the power.

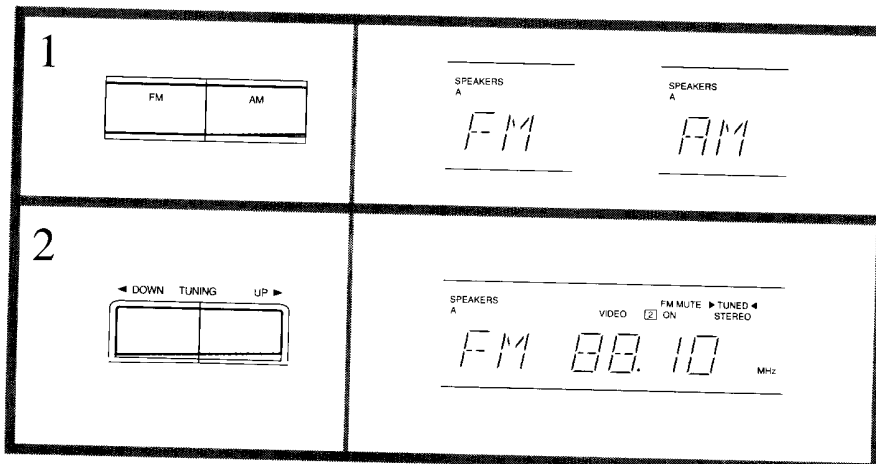
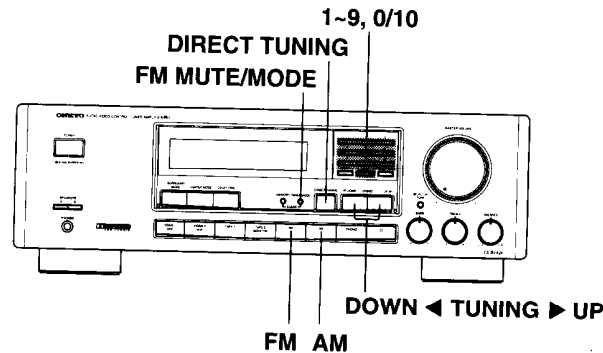
The direct function feature

When a compact disc player, and tape deck with the **RI** mark are connected together, you can use the direct function feature.

Simply by directly operating the desired component (compact disc player or tape deck), this unit's Input Selector automatically switches to that component.

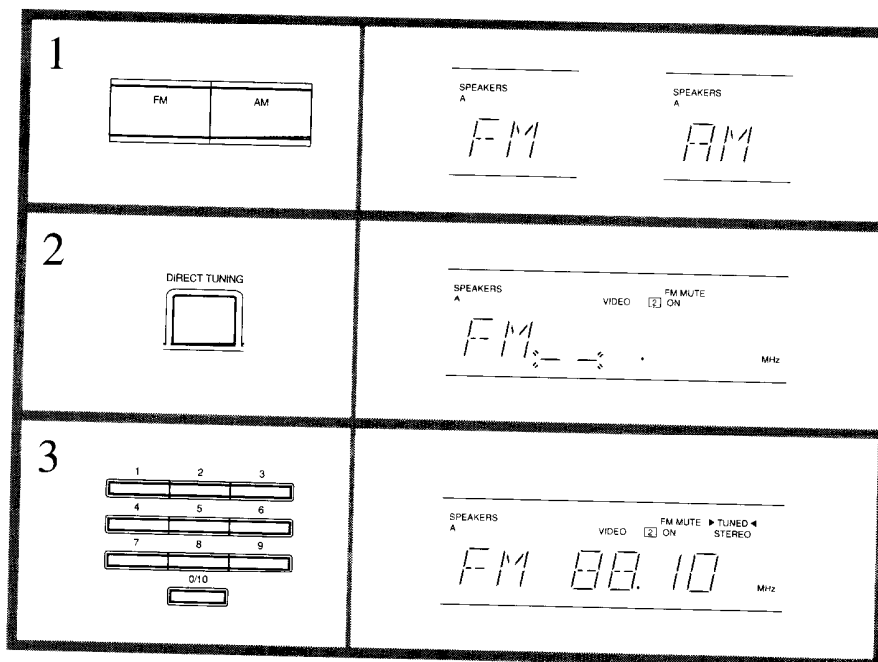
It is not necessary to switch this unit's Input Selector when changing listening sources.

Receiving stations



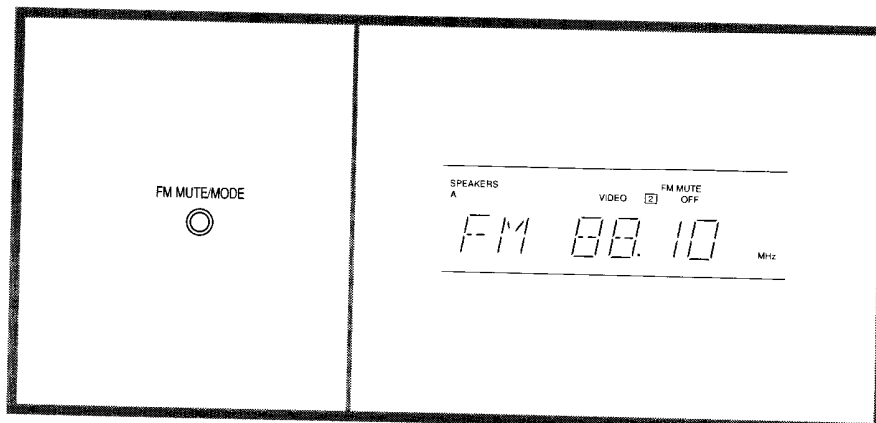
Manual tuning

1. Press the FM or AM button.
 2. Use the TUNING UP/DOWN buttons to change the frequency.
UP.....the frequency increases.
DOWN the frequency decreases.
- The frequency is changed in 50kHz steps in FM and 10kHz (or 9kHz) in AM when the TUNING UP/DOWN button is pressed in single steps.
 - In FM, if this button is held continuously for more than 0.5 seconds, the frequencies are scanned automatically (FM auto tuning mode). When a broadcast is received, scanning stops.



Direct tuning

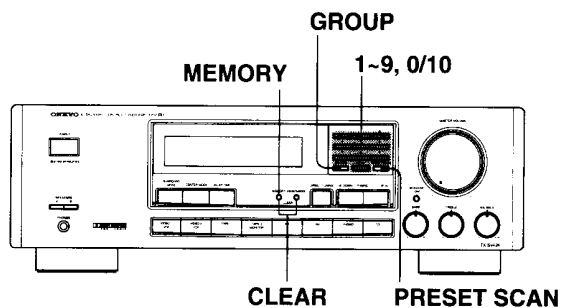
1. Press the FM or AM button.
 2. Press the DIRECT TUNING button.
The " _ " will flash 16 seconds in the frequency display.
 3. Enter the frequency with the number buttons while the cursor are flashing.
Example: 88.10MHz
8 → 8 → 1 → 0/10
Use the 0/10 number button to enter a 0.
- If you enter a frequency that is out of range, this unit will return to the previous frequency. If this happens, repeat the procedure.
 - When receiving AM broadcasts with a 10kHz steps, entering a number for the 10kHz digit will set the 1kHz digit automatically to 0.



Listening to a stereo radio stations (FM mode)

If you tune in a stereo FM station, the STEREO indicator will be illuminated if the signal is sufficiently strong.
If the signal is weak, it may be impossible to tune in to your desired station. In this case, tune in as follows.
Press the FM MUTE/MODE button and FM MUTE OFF indicator lights. At this time, the station will be in mono and inter-station noise will be heard. Select the station you want listen to.

Using preset stations



2	 MEMORY	
3	 GROUP	
4	 1 2 3 4 5 6 7 8 9 0/10	

Programming radio stations

1. Select the frequency that you want to store in the memory.
(See Receiving stations on page 16.)
 2. Press the **MEMORY** button.
The MEMORY indicator will light for 8 seconds.
 3. While the **MEMORY** indicator lights, press the **GROUP** button to choose the desired group.
The group shown on the display changes in the following order each time the button is pressed: A → B → C → A.
 4. Select the desired memory number using the number buttons.
Use the 0/10 number button to enter a 10.
- Since ten AM or FM stations can be stored in each group (A, B or C), a total of 30 stations can be stored in the memory.

1	 GROUP
2-a	 1 2 3 4 5 6 7 8 9 0/10
2-b	 PRESET SCAN

Recalling preset stations

1. Press the **GROUP** button to select the desired group.
- 2-a. Input the memory number you wish to receive by using the number buttons.
- 2-b. Press the **PRESET SCAN** button.
Each station stored in the group chosen in step 1 will be received for 5 seconds (for each station).
When the station that you want is found, press the **PRESET SCAN** button again and scanning will stop.

1	 GROUP
2	 PRESET

Use Remote control

1. Press the **GROUP** button and choose the group.
2. Press the **PRESET** (◀ or ▶) button.
After the last number of GROUP C is reached, scanning will restart at GROUP A.

 MEMORY FM MUTE/MODE CLEAR	
----------------------------------	--

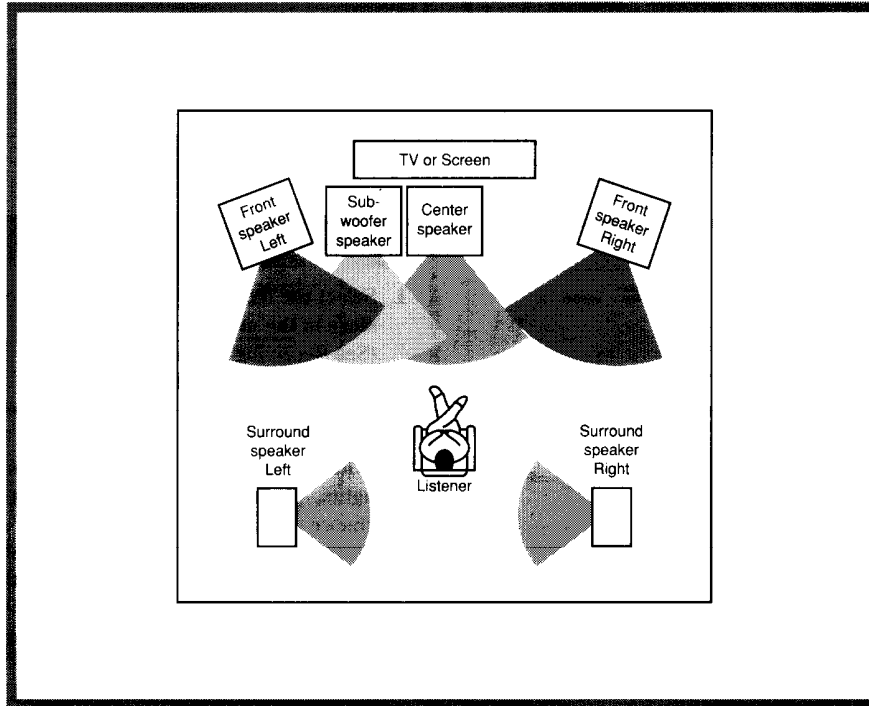
Cancelling preset stations

1. Select the station as explained in the previous section.
 2. Press the **FM MUTE/MODE** button while holding down the **MEMORY** button. "—" will be shown on the channel display.
- Once the preset station has been cancelled, the memory location can be used to store another station.

Dolby Pro Logic Surround

Surround system

Since the TX-SV424 is equipped with a front amplifier, center amplifier and a rear (surround) amplifier, Dolby Pro Logic Surround effects can all be produced. When you use video cassette tapes or video discs that have the DOLBY STEREO or DOLBY SURROUND trade mark, you can enjoy the feeling of a movie theater in your own room. When reproducing these effects, placement of the rear (surround) speakers is important for optimum sound quality in your room.



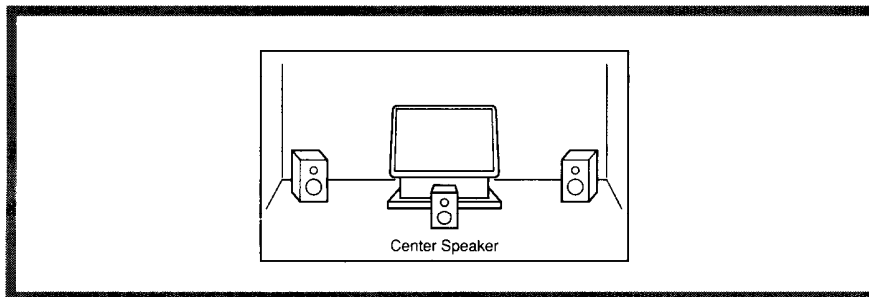
Placing the speakers for Surround effects

Speaker placement plays an important role in the reproduction of sound using Surround. The manner in which the speakers are placed varies depending on the size of the room and the wall coverings used in the room. The following shows an example of a layout for standard speaker placement. Refer to the example for placing the speakers appropriately in order to experience the best Surround sound.

In principle, for Surround sound reproduction, two Front speakers and two Surround (Rear) speakers are required. Refer to the illustration on the left.

Placing the front speakers

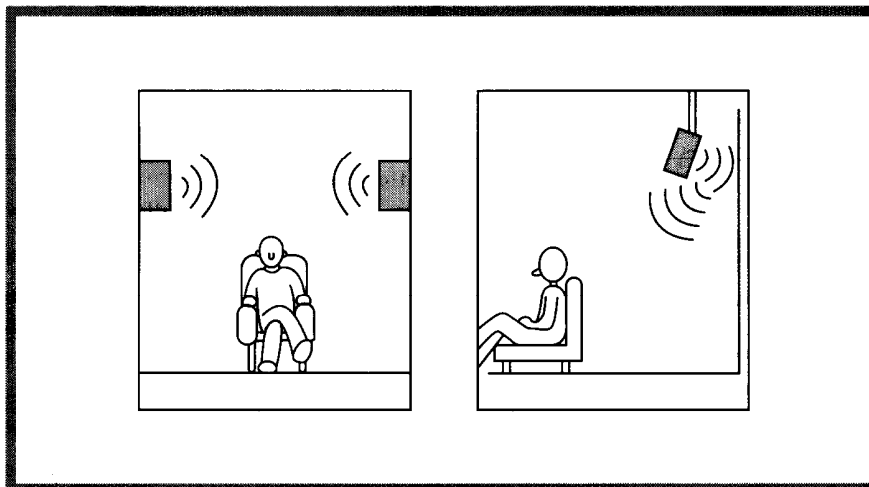
If the Front left and right speakers are placed too far away from each other, sound spreads out too much and is dispersed resulting in diminished sound quality.



Placing the center speaker

To enjoy Surround sound, a Center speaker is required in addition to the four basic speakers.

If a screen with a projector is used, place the Center speaker under the screen. If a Monitor TV is used, it is recommended that the Center speaker be placed on top of or under the Monitor.



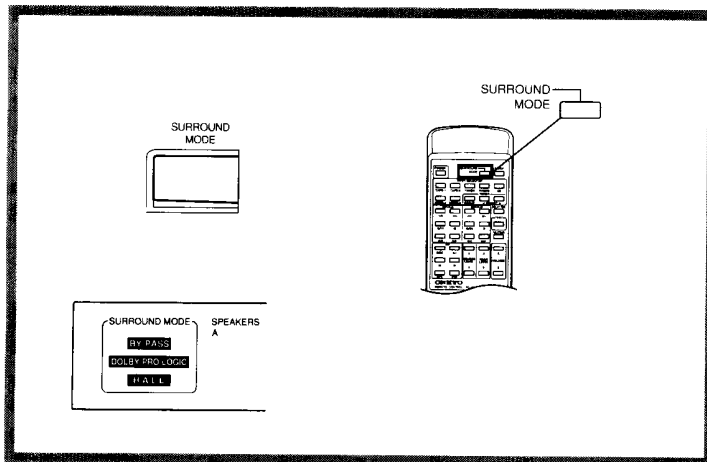
Placing the rear speakers

To bring out the feeling of shifting sound, the rear speakers should not be placed on the floor, but would be most effective placed above ear position. They can also be placed facing the ceiling or walls to reflect the sound.

Placing the subwoofer

To enjoy powerful bass sounds, install a subwoofer with a built-in power amplifier. The placement of the Subwoofer does not affect the final quality of the sound image too much, therefore as its exact placement is not critical, you can install it more with the room layout in mind. To especially enjoy A/V Surround, a Subwoofer can bring out the best features of Dolby Pro Logic Surround.

Dolby Pro Logic Surround



Surround Mode

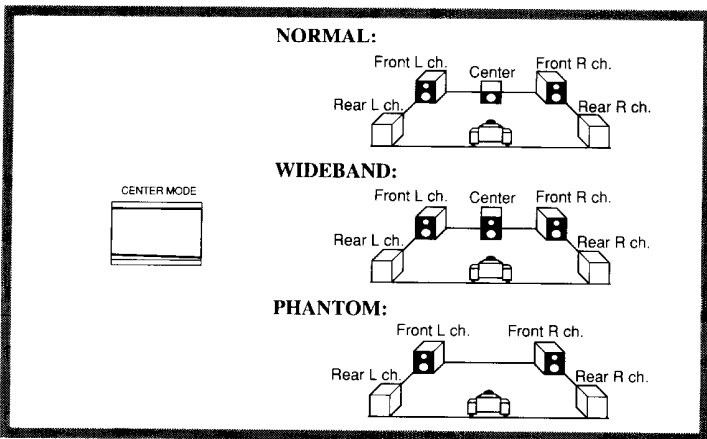
Select a mode by pressing the SURROUND MODE button. Make your choice of modes depending on the type of music you are listening to, the media used, and your personal preference.

DOLBY PRO LOGIC: By using video tape and laser discs with the Dolby Surround trade mark. You can decode four channel Surround sound.

HALL: Simulates the atmosphere of a concert hall. Intended for classical music.

BY-PASS: This mode is used when you do not wish to use the Surround mode. All input sound is output from the front speakers directly.

- The selected surround mode (Dolby Pro Logic, Hall or By-pass) is automatically stored along with the selected source. When the same source is subsequently selected, the stored surround mode will be automatically recalled.



Center Mode

Because the Center speaker plays such an important part in Dolby Pro Logic surround, three different modes are available for it, depending on its size.

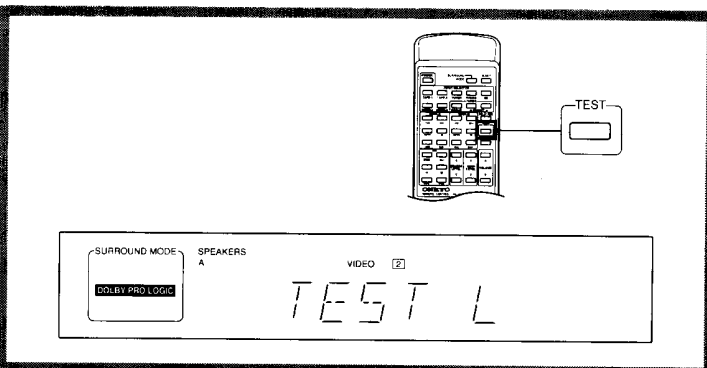
Select a mode by pressing the CENTER MODE button.

NORMAL: Use this setting when using a Center speaker smaller than the Front left and right speakers.

WIDE BAND: Use this setting when using a Center speaker similar to the Front left and right speakers in size and power.

PHANTOM: Use this setting when a Center speaker is not present.

- When you press the CENTER MODE button, the name of each mode will be shown on the display for 3 seconds in turn.



Test Tone

Use the test tone to adjust the volume level of each of the speakers before enjoying Dolby Pro Logic Surround.

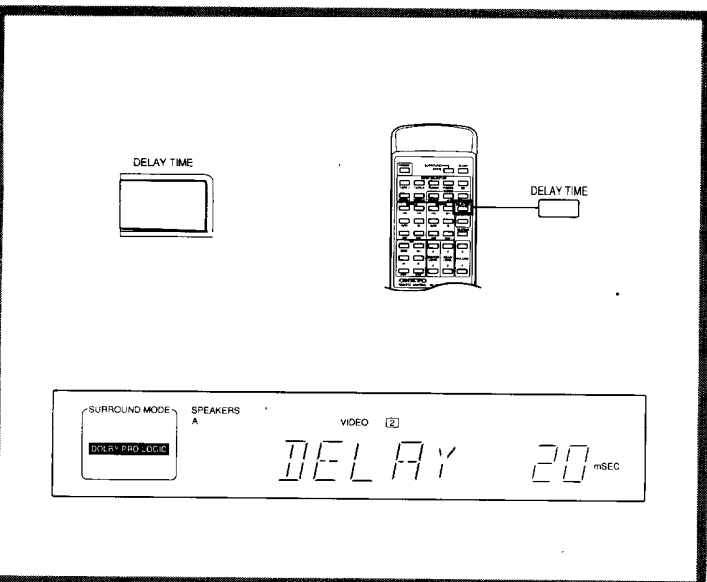
The test tone (pink noise) is produced by each speaker in turn so you can match the volume levels of the Front, Center and Rear speakers. The test tone cycling sequence depends on the center mode settings, as follows.

If CENTER MODE is NORMAL or WIDE BAND:

→ Front Left → Center → Front Right → Rear

If CENTER MODE is PHANTOM:

→ Front Left → Front Left + Right → Front Right → Rear

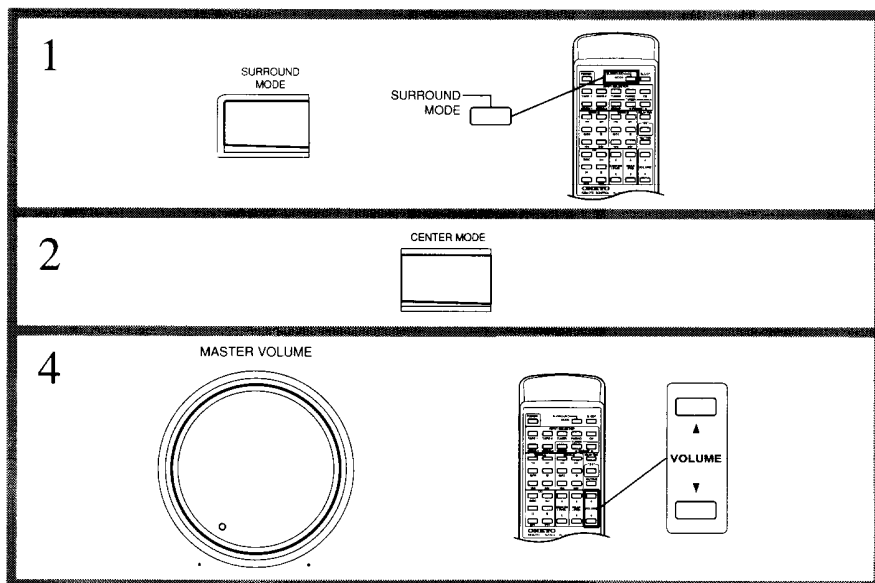
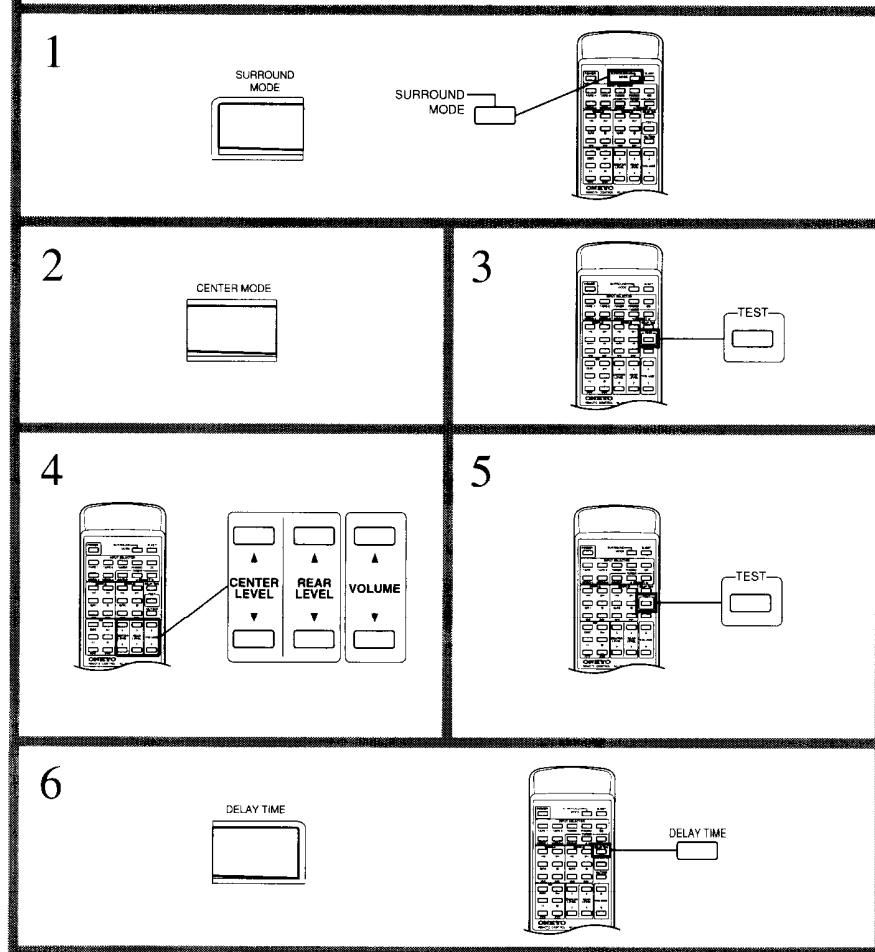
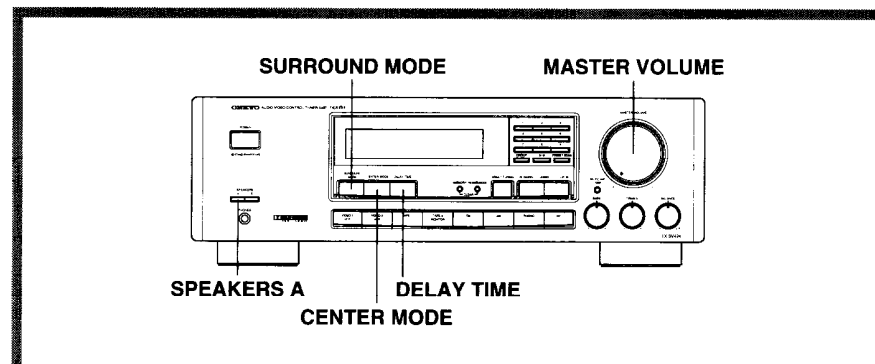


Delay Time

You can change the delay time for the sound from the rear (surround) speakers.

Pressing the DELAY TIME button changes the delay time every 5 msec during a period of 15 to 30 msec in Dolby Pro Logic and every 5 msec during a period of 5 to 30 msec in Hall. Dolby Surround delay time is specified at 20 msec. It is recommended that initial Dolby Surround delay time be set at 20 msec, and adjustment to either 15 or 30 msec possible via the control. By adjusting the delay time, and carefully adjusting Master Volume Level, Center Volume Level and Rear Volume Level, the apparent acoustic size of your listening room can be enlarged or deduced. Adjustable delay time allows you to tailor the acoustic size of your listening environment to match the sonic characteristic spaces, such as concert halls, cathedrals, etc. Use a shorter delay to simulate the size of a small club or cabaret. Respective delay time can be memorized for each surround mode. This operation can also be performed using the delay time button of the remote control.

- When you press the DELAY TIME button, DELAY and the delay time will be shown for 3 seconds on the display.



If there are differences in the volume levels of the speakers when enjoying Dolby Pro Logic Surround, you will not be able to get the best effect. You should use the test tone to adjust all the speakers to the same volume level.

Before operating: Be sure to turn on **SPEAKERS A** and turn off **SPEAKERS B** when enjoying Dolby Pro Logic Surround.

Adjusting the speaker volume

1. Select a source encoded with Dolby Surround and use the **SURROUND MODE** button to select **DOLBY PRO LOGIC** mode.
2. Use the **CENTER MODE** button to select center mode.
When the button is pressed, the mode will change as shown below.

→NORMAL → WIDE BAND → PHANTOM←

(Refer to the page 19 for details of these modes.)

3. Press the **TEST** button on the remote control.

(Refer to the Test Tone on the page 19 for details.)

4. From your listening position, adjust the relative volume level of the test tone from the different speakers, on the remote control.

Adjust the volume levels of all of the speakers with the **VOLUME** ▲ (up) and ▼ (down) buttons.

Adjust the volume levels of the Center speakers with the **CENTER LEVEL** ▲ (up) and ▼ (down) buttons.

Adjust the volume levels of the Rear speakers with the **REAR LEVEL** ▲ (up) and ▼ (down) buttons.

5. Press the **TEST** button again and stop the pink noise.

6. Use the **DELAY TIME** button to set the delay time.

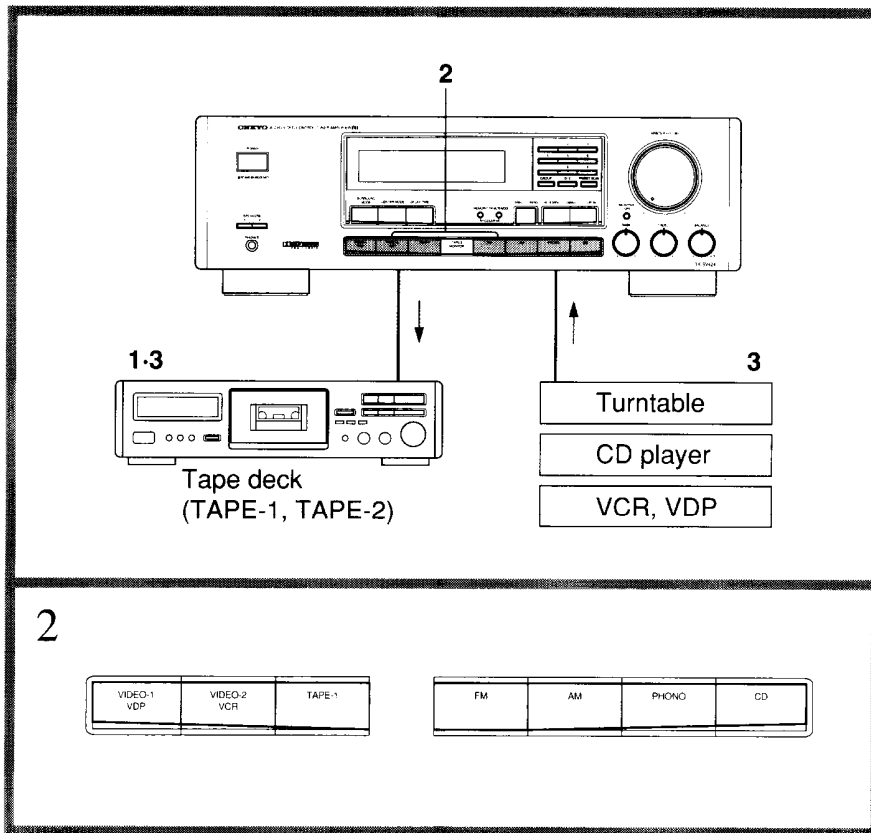
(Refer to the page 19 for details.)

Enjoying Dolby Pro Logic Surround

1. Use the **SURROUND MODE** button to select the surround mode.
2. Use the **CENTER MODE** to select the center mode.
3. Play a source encoded with Dolby Surround.
4. Adjust the **MASTER VOLUME** control knob.

- Treble, Bass, Selective Tone and Balance controls are effective only for the Front left and right speakers. The best effect from Dolby Pro Logic Surround can be obtained when equal settings are used for the sound from the L/R front speakers and the sound from the center speaker for the middle and treble ranges.

Recording a source



Recording an audio source

Please read the instruction manuals concerning the operation of each unit.

1. Insert a blank tape into the tape deck.
2. Press the button of input selector for the source from which you want to record.

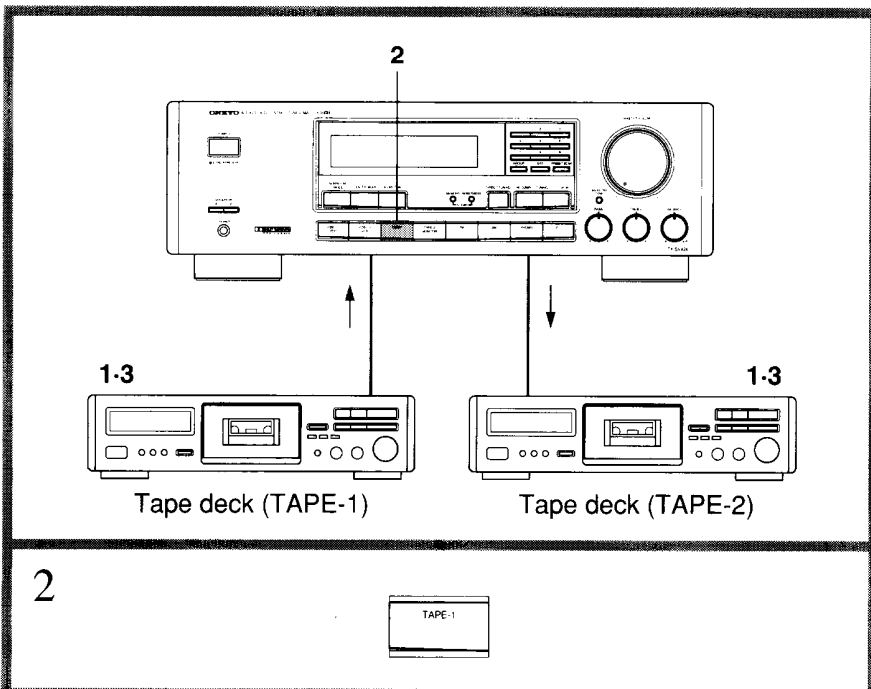
- When VIDEO-1/VDP or VIDEO-2/VCR is selected, it will (naturally) only record the audio.
- When FM or AM is selected, set the tuner to the station you want to record from.
- When TAPE-1 is selected, it will record to the TAPE-2 REC jacks.
- When either VIDEO-1/VDP, VIDEO-2/VCR, FM, AM, PHONO or CD is selected, you are able to record to both the TAPE-1 and TAPE-2 REC jacks.

3. Put the tape deck in the recording mode. Begin playing the source.

Set the proper recording level using the controls on the tape deck used for recording. Also, during recording and dubbing operations, if any controls (bass, treble etc.) on this unit are changed during recording and dubbing operations, the tone effects will not change.

Tape-to-tape dubbing

1. Load the original tape in deck 1 and the blank tape in deck 2.
2. Press the TAPE-1 button.
3. Put tape deck 1 in the playback mode and tape deck 2 in recording mode.

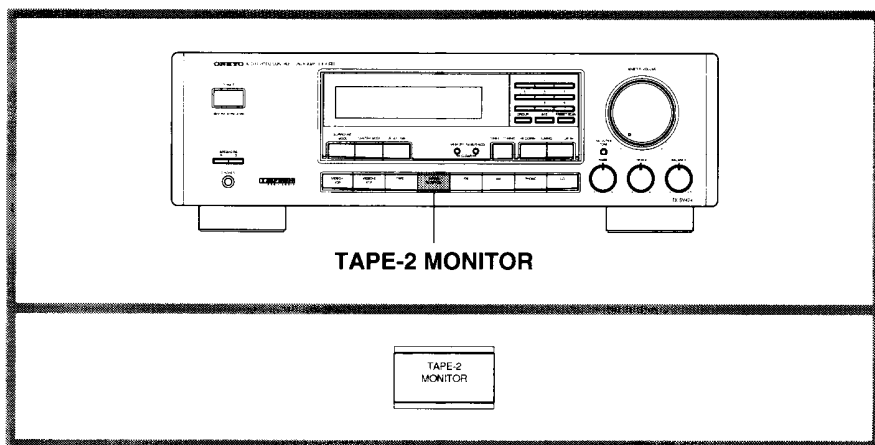


Monitoring

The source signal can be monitored through the speakers or headphones, when TAPE-2 MONITOR is turned off.

If tape deck 2 has three heads, the just-recorded signal can be monitored (when the TAPE-2 MONITOR is turned on). Refer to the tape deck instruction manual for more details.

Recording a source



Using a graphic equalizer

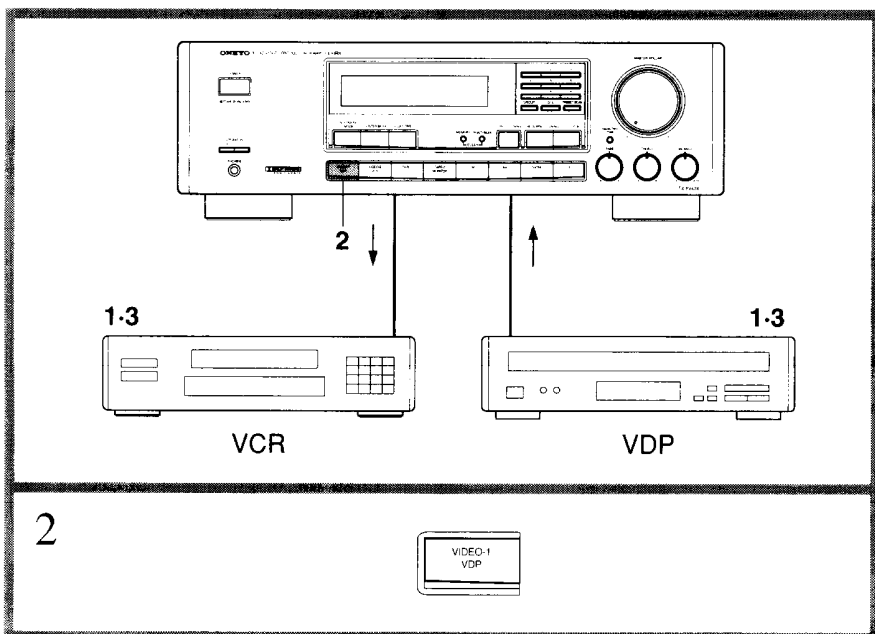
Connect the graphic equalizer to the TAPE-2 jacks on the rear panel.

If a second tape deck is used, connect it to the tape jacks on the graphic equalizer. Also see "Connecting a tape deck" on page 7 when making connections.

Press the TAPE-2 MONITOR button.

Follow the graphic equalizer operating instructions.

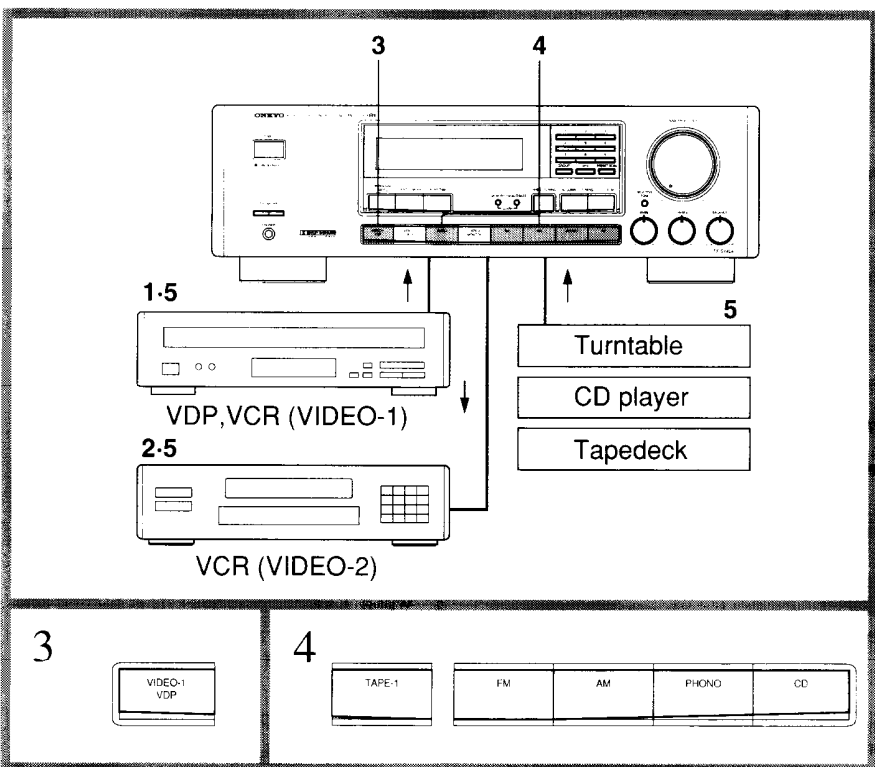
To record an equalized signal, use tape deck 2 (connected to the equalizer) for recording.



Video disc player (or video camcorder) to VCR recording

Video disc programs can be recorded onto a VCR (VIDEO-2).

1. Load a disc in the video disc player, and a blank tape in the VCR (VIDEO-2).
2. Press the VIDEO-1/VDP button.
3. Begin playback on the video disc player and recording on the VCR.



Adding new sound to a video tape during video editing

During video tape editing, you can add the desired sound on the recording VCR from various audio program sources.

1. Insert the LD or tape that you want to record into the VDP or VCR connected to VIDEO-1.
2. Insert a blank video tape in the VCR connected to VIDEO-2.
3. Press the VIDEO-1/VDP button.
4. Select the audio program source (TAPE-1, FM, AM, PHONO, CD).
5. Begin playback of the video connected to the VIDEO-1 and also start the sound source, then start recording on the VIDEO-2 VCR.

Refer to the video disc player, video camcorder or VCR instruction manuals for additional information.

Trouble shooting guide

If a problem occurs while you are using the remote control, first operate the unit using the front panel controls to confirm that it is not due to a malfunction (or worn out batteries) of the remote control.

Trouble	Cause	Remedy
No power.	<ul style="list-style-type: none"> Power cord is disconnected. There is external noise in the computer circuits of this unit. AC fuse blown. 	<ul style="list-style-type: none"> Connect power cord. Turn the power button off and then on again or remove the AC plug from the outlet and then plug it again. Contact your Onkyo Service Center.
Power on but no sound.	<ul style="list-style-type: none"> TAPE-2 MONITOR button is on. MUTING button is on. Bad connections. Amplifier protection circuitry has been activated. ("PROTECT" will be displayed.) 	<ul style="list-style-type: none"> Switch to off. Switch to off by the remote control. Check connections, speaker leads, etc. Contact your Onkyo Service Center.
No sound from the center speaker, or very minimal sound.	<ul style="list-style-type: none"> Speaker cord is not corrected. SURROUND MODE button is set to BY-PASS. CENTER LEVEL is set to minimum. CENTER MODE button is set to PHANTOM. 	<ul style="list-style-type: none"> Check the connection between the amplifier and the speaker. Set the SURROUND MODE button to DOLBY PRO LOGIC or HALL. Set the CENTER LEVEL to the appropriate volume. Set CENTER MODE button to NORMAL or WIDEBAND.
Hum, low-frequency noise.	<ul style="list-style-type: none"> Poor or no input ground. Poor or no phono motor ground. The placement of the audio connection cables on the rear panel is incorrect. 	<ul style="list-style-type: none"> Check outer conductor of input plugs. Check for proper ground connection. Adjust the placement of the cable to reduce hum.
Howling when the volume is turned up.	<ul style="list-style-type: none"> Turntable and speakers are too close together. 	<ul style="list-style-type: none"> Move them farther apart.
Rough or scratchy sound. High range is not clear.	<ul style="list-style-type: none"> Stylus of turntable pick-up is worn. Turntable stylus tip is dirty. Treble control too high. 	<ul style="list-style-type: none"> Replace. Clean. Turn treble control down.
AM stations cannot be received.	<ul style="list-style-type: none"> AM loop antenna is not attached. 	<ul style="list-style-type: none"> Connect the included AM loop antenna to the AM antenna terminals.
Buzzing noise on AM (particularly conspicuous at night or with weak stations).	<ul style="list-style-type: none"> Noise from electrical apparatus such as fluorescent lamp. 	<ul style="list-style-type: none"> Move the AM loop antenna to different position. Set up an outdoor AM antenna.
High-pitched noise or buzzing noise on AM.	<ul style="list-style-type: none"> Noise from TV set. 	<ul style="list-style-type: none"> Place the AM loop antenna as far as possible from the TV. Move unit away from TV set.
Crackling noise on AM, FM.	<ul style="list-style-type: none"> Noise caused by turning fluorescent lamp on and off. Noise from automobile ignition. 	<ul style="list-style-type: none"> Move antenna as far as possible from the fluorescent lamp. Install an FM outdoor antenna as far as possible from the road. Change the position or direction of the outdoor antenna.
TUNED and STEREO indicators light but sound is distorted and stereo separation is bad.	<ul style="list-style-type: none"> Station is too strong. Multiple reflection of the radio waves because of tall buildings or mountains. 	<ul style="list-style-type: none"> Change to T-shaped antenna. Use antenna which has better directivity and select a point where the distortion is least.
TUNED and STEREO indicators flicker and hiss is heard on FM.	<ul style="list-style-type: none"> Station is too weak. Stereo FM broadcasts cover only about half the distance of an ordinary broadcast. 	<ul style="list-style-type: none"> Install an outdoor FM antenna. Change the position or direction of the outdoor antenna.
No station is recalled when a PRESET SCAN button is pressed.	<ul style="list-style-type: none"> The power cord has been unplugged for a long time. 	<ul style="list-style-type: none"> The memory contents are lost. Store all stations again.
Front panel controls function but remote control does not.	<ul style="list-style-type: none"> No batteries in remote control. Batteries have worn out. 	<ul style="list-style-type: none"> Insert batteries. Replace batteries

- Also refer to the respective instruction manuals of the video disc player, video cassette recorder, TV monitor, etc., being used.

Specifications

AMPLIFIER SECTION

Power Output

Stereo mode

Front L/R channels: 60 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.

Continuous Power output: 2×65 watts at 8 ohms, 1 kHz (DIN)

Surround mode

Front L/R and Center channels: 50 watts per channel, min. RMS at 8 ohms, with no more than 0.08% total harmonic distortion at 1 kHz

Rear channels (Rear only driven): 15 watts per channel, min. RMS at 8 ohms, with no more than 0.3% total harmonic distortion at 1 kHz

Total Harmonic Distortion: 0.08% at rated power (Front)

IM Distortion: 0.08% at rated power (Front)

Damping Factor: 60 at 8 ohms (Front)

Sensitivity and Impedance

Phono: 2.5 mV/50 kohms

CD/Tape Play: 150 mV/50 kohms

Tape Rec: 150 mV/2.2 kohms

Mono out (Subwoofer): 1 V/2.2 kohms

Phono Overload: 120 mV RMS at 1 kHz, 0.5% T.H.D.

Frequency Response: 20 Hz to 30 kHz, ± 1 dB

RIAA Deviation: 20 Hz to 20 kHz, ± 0.8 dB

Tone Control

Bass: ± 10 dB at 100 Hz

Treble: ± 10 dB at 10 kHz

Signal-to-Noise Ratio

Phono: 80 dB (IHF A, 5 mV input)

CD/Tape: 100 dB (IHF A)

VIDEO SECTION

Signal sensitivity and impedance: 1 Vp-p, 75 ohms (VDP/VCR input, output)

TUNER SECTION

FM

Tuning Range: 87.5 — 108.0 MHz

Usable Sensitivity

Mono: 11.2 dBf, 1.0 μ V (75 ohms)

Stereo: 17.2 dBf, 2.0 μ V (75 ohms)

50dB Quieting Sensitivity

Mono: 18.2 dBf, 2.2 μ V (75 ohms)

Stereo: 38.2 dBf, 22 μ V (75 ohms)

Capture Ratio: 1.5 dB

Image Rejection Ratio

U.S.A. & Canadian models: 40 dB

Other area models: 85 dB

IF Rejection Ratio: 90 dB

Signal-to-Noise Ratio

Mono: 73 dB

Stereo: 67 dB

Alternate Channel Attenuation: 55 dB

Selectivity: 50 dB (DIN)

AM Suppression Ratio: 50 dB

Total Harmonic Distortion

Mono: 0.15%

Stereo: 0.25%

Frequency Response: 30 Hz — 15 kHz, ± 1.5 dB

Stereo Separation: 45 dB at 1 kHz

30 dB at 100 Hz — 10 kHz

AM

Tuning Range

U.S.A. & Canadian models: 530—1,710 kHz (10 kHz steps)

European & Australian models: 522—1,611 kHz (9 kHz steps)

Worldwide models: 531—1,602 kHz (9 kHz steps), 530—1,710 kHz (10 kHz steps)

Usable Sensitivity: 30 μ V

Image Rejection Ratio: 40 dB

IF Rejection Ratio: 40 dB

Signal-to-Noise Ratio: 40 dB

Total Harmonic Distortion: 0.7%

GENERAL

Power Supply

U.S.A. & Canadian models: AC 120 V, 60 Hz

European & Australian models: AC 230 V, 50 Hz

Worldwide models: AC 220 V and 120 V switchable, 50/60 Hz

Power Consumption

U.S.A. & Canadian models: 2.8 A (325 W)

Other area models: 240 W

Dimensions (W \times H \times D): 455 \times 150 \times 322 mm

17-15/16" \times 5-7/8" \times 12-11/16"

Weight: 9.6 kg, 21.2 lbs.

REMOTE CONTROL RC-295S

Transmitter: Infrared

Signal range: Approx. 5 meters, 16 ft.

Power supply: Two "AA" batteries (1.5 V \times 2)

Dimensions (W \times H \times D): 65 \times 18 \times 194 mm

2-9/16" \times 11/16" \times 7-5/8"

Weight: 110 grams, 3.9 oz. (including batteries)

Specifications and features are subject to change without notice.

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